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NAVAL POSTGRADUATE SCHOOL
Monterey, California

THESIS

A REVIEW OF MILITARY RECRUITING RESEARCH

by

Jerry J. Brown

June 1984

Thesis Advisor: T. G. Swenson

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The purpose of this thesis is to construct a comprehensive and systematic review of the existing research in the area of recruiting and recruiter productivity.

The objective is to identify areas where further investigation and research would be beneficial. The need for further study will be defined by either a paucity of related

studies and/or the desirability of updating completed research projects to achieve currency.

The intent of this undertaking is not to provide a critical review of the studies investigated, but rather to simply identify holes in the research. The discovery of areas where little or no exploration has been attempted or where the research is no longer valid, in part or in whole, will identify the need to update the work.

Information such as is contained in this thesis will facilitate better planning and research design, assist in prioritization of projects, and improve allocation of research and development monies.

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A Review Of
Military Recruiting
Research

by

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Submitted in partial fulfillment of the
requirements for the degree of

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I. INTRODUCTION

A. BACKGROUND

The move from conscription to total voluntary military service was an historic transition which became effective on 1 July 1973, six months after the final draft call. A great deal of research has been undertaken in the area of recruiting for military service and the productivity of those selected to recruit since that time. It goes without saying that the importance of effectively utilizing recruiting assets has increased many-fold with the advent of this All Volunteer Force.

Not only are recruits needed in required numbers but they must also be of sufficient quality. The Secretary of Defense [Ref. 1] concludes that rather than being a military composed of poorly educated, low aptitude individuals, today's recruits must compare most favorably with the best in civilian society.

Since the inception of the All Volunteer Force, the Department of Defense and the individual services have dedicated an increased level of resources to the recruiting of qualified individuals for service in the armed forces. While significant resources are dedicated to advertising and promotional activities, the majority of the resources

expended each year are for the provision and support of field recruiting forces which in the aggregate total more than 12,000. Enhancing the productivity of these resources would have a substantial impact on DOD and the individual services as well. Beyond savings in dedicated resources, the provision of adequate numbers of qualified service recruits is an important determinant of overall defense readiness.

The productivity of the services field recruiting forces is greatly influenced by phenomena beyond the control of those in the recruiting commands. These phenomena include but are not limited to broad macroeconomic conditions, sociological and demographic trends and other government policies.

The following are capsulizations of differing recruiting thrusts and techniques employed by the individual services.

1. Army

As described by Goodstadt [Ref. 2], the Army currently has a 6000 man recruiting force distributed over 2100 stations and resource allocation is a chronic problem. The Army considers productivity at both the macro level (e.g. strategic early warning of shifts in the economy) and at the micro level (e.g. recruiter performance). There also appears to be wide variation in productivity among recruiting stations.

The Army emphasizes teamwork in recruiting and has an elaborate goaling system in which individual recruiters

receive a monthly "mission box" spelling out the particular types of people they are to attempt to enlist.

2. Air Force

The Air Force defines productivity [Ref. 3] as the average number of contracts per recruiter per year; in 1982 the figure was 40.7, derived from 67,000 contracts generated by approximately 1600 field recruiters. The Air Force believes that the length of experience of recruiters has a major influence on productivity. Productivity increases dramatically after four months of service then levels off. Resources, sales skills, promotional activity, enlistment options, and recruiter incentives are considered by the Air Force to be extremely important variables in successful recruiting.

3. Navy

The Navy [Ref 4.], unlike the Army and Air Force, gives a great deal of autonomy to its recruiting area and district commanders in how goals are distributed among stations. The Navy Recruiting Command sets specific goals for each of the six recruiting areas and each is responsible for meeting its targets. In addition, headquarters makes recommendations to the areas regarding the goals to be allocated to specific recruiting districts. The actual allocation of goals to districts, however, is the responsibility of each area commander.

As part of the goaling process, local commanders make subjective adjustments to take account of local economic

conditions, ethnic characteristics, etc. Above all NRC emphasizes flexibility. A major program used by the Navy is the PRIDE system which recruits people into specific ratings and training programs. Additionally, a tracking and analysis system to anticipate developing problems and provide corrective action is used. Recruiter incentives include special recognition awards and national and local competitions among stations and districts. In addition to formal five week recruiter training programs, there is a mobile training team designed to deal with individual problems at local commands.

4. Marine Corps

The Marine Corps view of recruiting [Ref. 5] is that there are five main classes of variables that influence recruiter productivity: a) the commandant, who sets policy on the caliber of desired people, enlistment programs, etc.; b) the Congress, which controls personnel, pay, and recruiting resource allowances; c) the other services' recruiting success; d) demographic factors which can be forecasted, such as the number of high school graduates, and e) factors which cannot be forecasted (i.e., youth unemployment, public attitudes toward military service, and access to high schools). Headquarters Marine Corps sets recruiting goals only at the level of six Marine Corps districts. In order to estimate the number of qualified high school seniors, local recruiting organizations survey nearby high schools to develop estimates of the number of seniors graduating from each school. These

data are then incorporated into a model at Headquarters Marine Corps. Estimates of the number of seniors are then combined with historical Defense Manpower Data Center (DMDC) data on testing results (by high school) to derive a forecast of the number of high school senior males who are expected to achieve particular test scores. Using this information, recruiting district commanders work out missions or recruiting objectives without intervention from higher levels.

Marine Corps recruiters are formally trained in a seven week school; however, the Marine Corps believes OJT to be the most effective training.

Two of the most important considerations that all the services face are 1) the problem of turning military personnel into salesmen when assigned to recruiting duty, and 2) the opportunity cost of removing a skilled and experienced NCO/Petty Officer from his trade to become a recruiter.

B. PROBLEM

Although many studies have been conducted on this subject, it does not appear that a compilation or listing of this work exists, complete or otherwise. Without such a listing for reference, identifying areas where research is thin or non-existent becomes an exercise in futility. Research tends to get done in areas of the researchers' expertise and/or interest when perhaps other areas are in greater need of exploration. More benefit possible could be

derived from the taxpayers' dollar by expenditure of research and development funds in fields so identified. A comprehensive compilation would thus serve a great purpose in guiding and assisting the serious researcher in this difficult arena called military recruiting.

C. PURPOSE

The purpose of this thesis is to construct just such a comprehensive and systematic review of the existing works in the area of recruiting and recruiter productivity.

The objective is to identify areas where further investigation and research would be beneficial. The need for further study will be defined by either a paucity of related studies and/or the desirability of updating completed research projects to achieve currency.

The intent of this undertaking is not to provide a critical review of the studies investigated, but rather to simply identify holes in the research. That is, finding areas where little or no exploration has been attempted or where the research is no longer valid, in part or in whole, thereby identifying the need to update the work.

Information such as that described above will facilitate better planning and research design, assist in prioritization of projects, and improve allocation of research and development monies. With proper utilization this listing will provide a basis from which to achieve more complete and current coverage of all areas of concern.

II. METHODOLOGY

A. SCOPE OF THE REVIEW

The time span of this study was limited to the period of the All Volunteer Force. All works reviewed were published between 1973 and 1983. Some studies in the early years utilized data gathered prior to the end of conscription. Studies that are ongoing at this time or completed but whose results are not yet published are acknowledged, categorized, and listed in Appendix A. These projects are not reviewed in detail due to the lack of sufficient information.

Recruiting concerns are defined and categorized in this study by the Navy Recruiting Command Productivity Management System [Ref. 6] and introduced later in this chapter as Figure 1. This system will be referred to as the Navy Productivity Model throughout the remainder of this thesis. Also for the purposes of this thesis, recruiter productivity is defined [Ref. 7] as follows:

$$\text{Productivity Per Recruiter (PPR)} = \frac{\text{Net New Contracts}}{\text{Net Recruiters On Production}}$$

Recruit screening and works on retention are not defined by the Navy Productivity Model and are not included herein. Research pieces covering all Department of Defense military services and one study by the Coast Guard are scrutinized.

B. LITERATURE SEARCH

The studies reviewed in this thesis were identified by a literature search intended to be as comprehensive and exhaustive as possible given the foregoing constraints. The search was keyed by the words/terms recruiting, military recruiting, recruiter, and recruiter productivity.

1. Local Sources

A portion of the research reviewed was obtained locally from faculty members within the Administrative Sciences Department and from the Manpower Personnel Training and Analysis (MPTA) curriculum library. A computerized search of publications held by the Naval Postgraduate School Dudley Knox library was conducted and studies identified were included in this review.

2. Non-local Sources

Computerized search services offered by three other organizations were also utilized.

A bibliography provided by the Defense Technical Information Center (DTIC) of the Defense Logistics Agency located in Alexandria, VA identified many substantial works to be reviewed. The search was conducted in May 1983. The Manpower and Training Research Information System (MATRIS), an arm of DTIC, further highlighted areas of research and identified completed studies. This MATRIS search was conducted in January 1984 and was the primary source in identification of the current ongoing funded research projects listed in Appendix A and discussed in later chapters.

recruiters followed by a six month recruiter qualification program and advanced training later on for those who become the first-line supervisors and middle managers of the recruiting program. In addition, a mobile training team of recruiting experts is available on request or assignment to provide corrective training to NRAs and NRDs if and when weaknesses occur in productivity development. The other services have comparable monitoring and training programs and will be reviewed in the same light as those in this model.

3. Research Category Analysis

The works reviewed are categorized by the primary area of study into one of the ten factors discussed in the foregoing paragraphs (market factors, other service competition, resource constraints, policy constraints, market analysis, management and policy, management information and tracking systems, incentive programs, selection and training). The results are displayed by matrix format in the Research Category Matrix presented as Table 1 in the Results/Discussion portion of this thesis (Chapter III). This method is used to place each study into one of the four exogenous or six endogenous factors of military recruiting and record total numbers of research works accomplished in each area. Secondary areas of research are also indicated in the matrix. The overall quick look comparison of these areas of research is then accomplished by analysis of the resulting bar graph (Figure 2) presented in Chapter III. Unpublished works and

those that are ongoing are categorized and listed in Appendix A and are also depicted in Figure 2. A paucity of research or total lack of work in individual areas is identified and addressed along with other salient points in this analysis.

4. Individual Category Analysis

The ten recruiting research categories are taken individually and assessed in greater detail by the use of nine individual category matrices (Tables 2-10) and ten bar graph/time flow charts (Figures 3-12) in Chapter III. Each completed study placed in the category addressed is evaluated. Several parameters are germane and are described more fully in the following paragraphs.

a. Objective

The objective of each study is briefly stated in the first information column of the matrix.

b. Service

The service that is the subject of the study is noted in the second information column of the matrix. Some studies address all military services or combinations of more than one but less than all. These are so noted.

c. Time Period

The time period from which the data is drawn and/or during which the work was accomplished is entered in the third information column of the matrix. This date is quite often different from the date the publication was published.

d. Sample

The sample of individuals or groups from which the information was drawn for the basis of the research is recorded in the fourth information column. In some instances where models or systems are being tested, simulations were used and are indicated as such.

e. Predictors

The variables used to predict the criteria are stated in the fifth column. These are usually actual independent or predictor variables but in some cases dummy variables are utilized as predictors.

f. Methodology

Techniques and methods of research and analysis are recorded in the sixth column. The matrix usually shows general methods while more detailed descriptions of methodology are contained in the review exhibits (Exhibits 1-64) in Appendix B.

g. Criteria

The criteria/criterion or dependent variables of the analyses are noted in the seventh and last information column of the matrix.

5. Continuing Research

New or continuing research or work completed but as yet unpublished is categorized and listed in Appendix A. These projects are analyzed, as to category of research and service involved, in Figures 2-12 in Chapter III.

6. Cross-referencing

A complete listing of the research works reviewed by this thesis is provided in the bibliography. Exhibits 1 through 64 comprise Appendix B and provide summary abstracts of the works reviewed. Salient points of each work are presented to include statements of conclusion. Exhibits 1 through 64 are numbered consecutively and match the order presented in the bibliography. The study numbers used in the research category matrix (Table 1), each individual category matrix (Tables 2-10), and all bar graphs (Figures 3-12) coincide with exhibit numbers for easy identification and convenient cross-referencing of the various listings and displays used in the Results/Discussion chapter. Unpublished and continuing research is divided into individual categories and listed in Appendix A in the same order in which they appear in Figures 3-12.

III. RESULTS/DISCUSSION

Of the ten factors of recruiting and recruiter productivity shown in Figure 1 and discussed in Chapter II (market factors, other service competition, resource constraints, policy constraints, market analysis, management and policy, management information and tracking systems, incentive programs, selection, and training), to say that any one or a combination of factors is more important to the recruiting process than any other would be pure conjecture. However, this analysis does reveal the areas that have drawn the most attention in the 11 years since the advent of the All Volunteer Force.

A. RESEARCH CATEGORY

The distribution of these related studies is shown in matrix format in Table 1. Primary categories of study are denoted by XX and secondary areas of interest are denoted by x. This distribution is graphically depicted by Figure 2. The analysis shows that nearly two-thirds (64%) of published works and over half (55%) of current ongoing studies are concentrated in the four exogenous factors as primary categories of research. These four categories are also secondary areas of interest in about two-thirds of the research.

Market Factors (MKT FACT) and Other Service Competition (OTH SVC COMP) are by far the two most investigated areas.

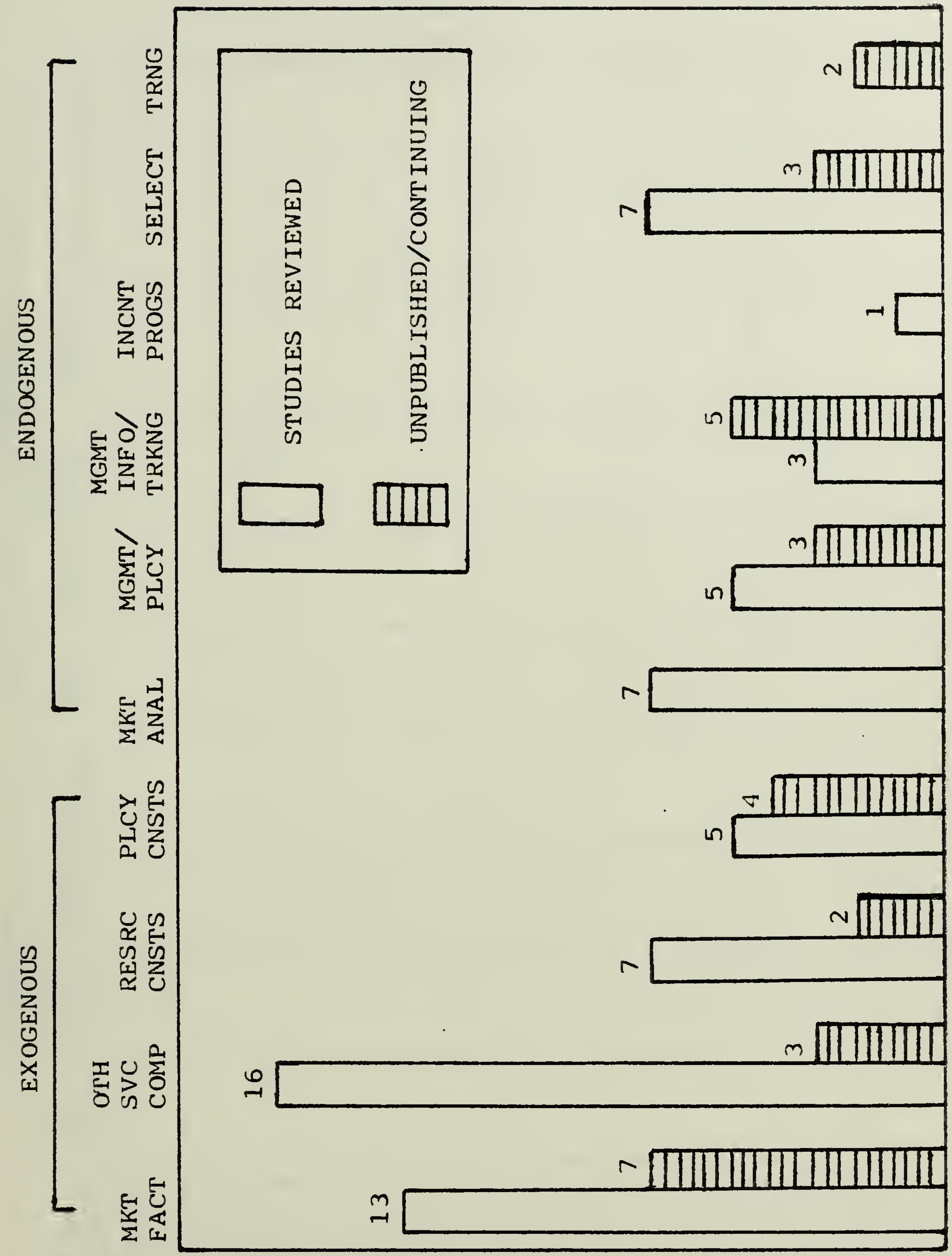

FIGURE 2. STUDY DISTRIBUTION

TABLE 1

RESEARCH CATEGORY MATRIX

	EXOGENOUS				ENDOGENOUS					
STUDY REVIEWED	MARKET FACTORS	OTHER SERVICE COMPETE	RESOURCE CNSTRNTS	POLICY CNSTRNTS	MARKET ANALYSIS	MNGMT/ POLICY	MNGMT INFO/ TRKING	INCENTIVE PROGRAMS	SELECTION	TRAINING
Study 1		XX		x						
Study 2	x	XX								
Study 3			x		XX					
Study 4							XX			
Study 5							XX			
Study 6	x		x		XX					
Study 7			XX		x					
Study 8									XX	
Study 9	x	XX								
Study 10	XX	x								
Study 11									XX	x
Study 12	x		XX	x						
Study 13	x	XX			x					
Study 14	XX	x								
Study 15			x	x	XX					
Study 16	x		x	XX	x					
Study 17	x	XX		x						
Study 18		XX								
Study 19	XX	x		x	x	x				
Study 20	x		XX		x	x				

TABLE 1 CONTD.

RESEARCH CATEGORY MATRIX

	EXOGENOUS				ENDOGENOUS					
STUDY REVIEWED	MARKET FACTORS	OTHER SERVICE COMPETE	RESOURCE CNSTRNTS	POLICY CNSTRNTS	MARKET ANALYSIS	MNGMT/ POLICY	MNGMT INFO/ TRKING	INCENTIVE PROGRAMS	SELECTION	TRAINING
Study 21	x			XX	x					
Study 22	x		XX	x	x					
Study 23									XX	
Study 24	x	XX	x							
Study 25	x	XX	x	x	x					
Study 26	x	XX	x							
Study 27						x			XX	
Study 28			x		XX					
Study 29	XX				x					
Study 30	x				XX					
Study 31			XX	x	x					
Study 32									XX	
Study 33			x		XX					
Study 34								XX		
Study 35									XX	
Study 36			x	x		XX				
Study 37	x			x		XX				
Study 38									XX	
Study 39						XX				
Study 40				XX	x					

TABLE 1 CONTD.

RESEARCH CATEGORY MATRIX

	EXOGENOUS				ENDOGENOUS					
STUDY REVIEWED	MARKET FACTORS	OTHER SERVICE COMPETE	RESOURCE CNSTRNTS	POLICY CNSTRNTS	MARKET ANALYSIS	MNGMT/ POLICY	MNGMT INFO/ TRKING	INCENTIVE PROGRAMS	SELECTION	TRAINING
Study 41	XX	x		x	x					
Study 42	XX	x								
Study 43	XX	x								
Study 44							XX			
Study 45	x	XX								
Study 46	x			XX						
Study 47	XX			x						
Study 48	x	XX	x	x	x					
Study 49	XX			x	x					
Study 50	XX		x			x				
Study 51	x	XX								
Study 52	x	XX			x					
Study 53	XX	x								
Study 54		XX								
Study 55	x	XX								
Study 56		XX		x						
Study 57	x				XX					
Study 58				x	x	XX				
Study 59	XX		x		x					
Study 60	XX	x		x						

TABLE 1 CONTD.

RESEARCH CATEGORY MATRIX

	EXOGENOUS				ENDOGENOUS					
STUDY REVIEWED	MARKET FACTORS	OTHER SERVICE COMPETE	RESOURCE CNSTRNTS	POLICY CNSTRNTS	MARKET ANALYSIS	MNGMT/ POLICY	MNGMT INFO/ TRKING	INCENTIVE PROGRAMS	SELECTION	TRAINING
Study 61				x	x	XX	x			
Study 62	x		XX		x					
Study 63				XX	x	x				
Study 64	x		XX	x	x					

Perhaps the fact that demographics, economic conditions, and quantity and quality of the youth cohort are constantly changing and require periodic updating is the driving factor here.

Resource Constraints (RESRC CNSTS) and Policy Constraints (PLCY CNSTS) are fairly well represented with respect to the remaining areas. Accession goals (quantity, quality, minority) and the proper mix of recruiter manning levels with advertising and support expenditures to achieve these goals are the thrust of these categories of research.

The six endogenous factors are not the subject of nearly as many works, at least not published works, as are the four factors that are external to the various recruiting commands. Market Analysis (MKT ANAL) is concerned with distribution of goals, recruiters, and advertising resources. Several explorations have been completed in this category but no current ongoing research was identified in the literature search. Management and Policy (MGMT/PLCY) deals with recruiter productivity and accountability and is fairly well covered in both completed and continuing works. Management Information and Tracking Systems (MGMT INFO/TRKING) on the other hand is the subject of more ongoing research than has been completed and published. This could be attributable to technological advances in computer systems and growing acceptance of the personnel/job match classification techniques. Selection of recruiters (SELECT) is an area that is extremely important

and was recognized as such early on in the All Volunteer Force years. Current work is also underway here.

The two areas that have drawn the least attention are Incentive Programs (INCNT PROGS) and Training (TRNG) for recruiters. Only one study dealing with incentives was reviewed and no current research attempts were identified. Training of recruiters has not been addressed in a published work but is the subject of funded research projects currently being conducted by both the Army and Navy.

Market Analysis is the only endogenous category that was the secondary area of interest in a significant number of studies.

B. RESEARCH ELEMENTS

The factors of recruiting and recruiter productivity as described by the Navy Productivity Model are divided into the ten categories (4 exogenous/6 endogenous) and further analyzed in this section by the elements of the individual studies. These elements (objective, service, time period, sample, predictors, methodology, and criteria) are detailed in Tables 2-10. Study numbers (Study Reviewed column of Tables 2-10) are the same as the Exhibit numbers in Appendix B and in the order presented in the bibliography. These tables provide a quick look at the pertinent facts of each study reviewed.

Time periods of research works conducted from 1973 to the present as well as the military service or combinations

therof that are addressed are graphically depicted in Figures 3-12. Time periods prior to 1973 are included in the 1973 column. The figures provide a division of studies over time by service and factor. Boxes marked U/C in the far right-hand column labeled NEW represent unpublished or continuing research.

Exhibits 1 through 64 make up Appendix B and are summary abstracts of each study included in this review and provide more detail than the tables or figures. A more complete listing of predictors, samples, etc. plus brief summaries and statements of conclusion are included in these exhibits.

1. Market Factors

Figure 3 graphically shows the time relationships of all works completed concerning market factors. Demographics are everchanging and require constant updating as do the economic conditions as they concern the military, primarily youth unemployment rates and military/civilian pay ratios. Youth awareness of the military and the propensity of the youth cohort to enlist are measured as well.

DOD wide research covering all services seems to be fairly complete as do Navy only studies. Most work was done between 1975 and 1981 and several studies are ongoing at this time. The Army has completed two studies and has one underway but the Air Force is totally unrepresented in this field of study with the exception of the investigations covering all services.

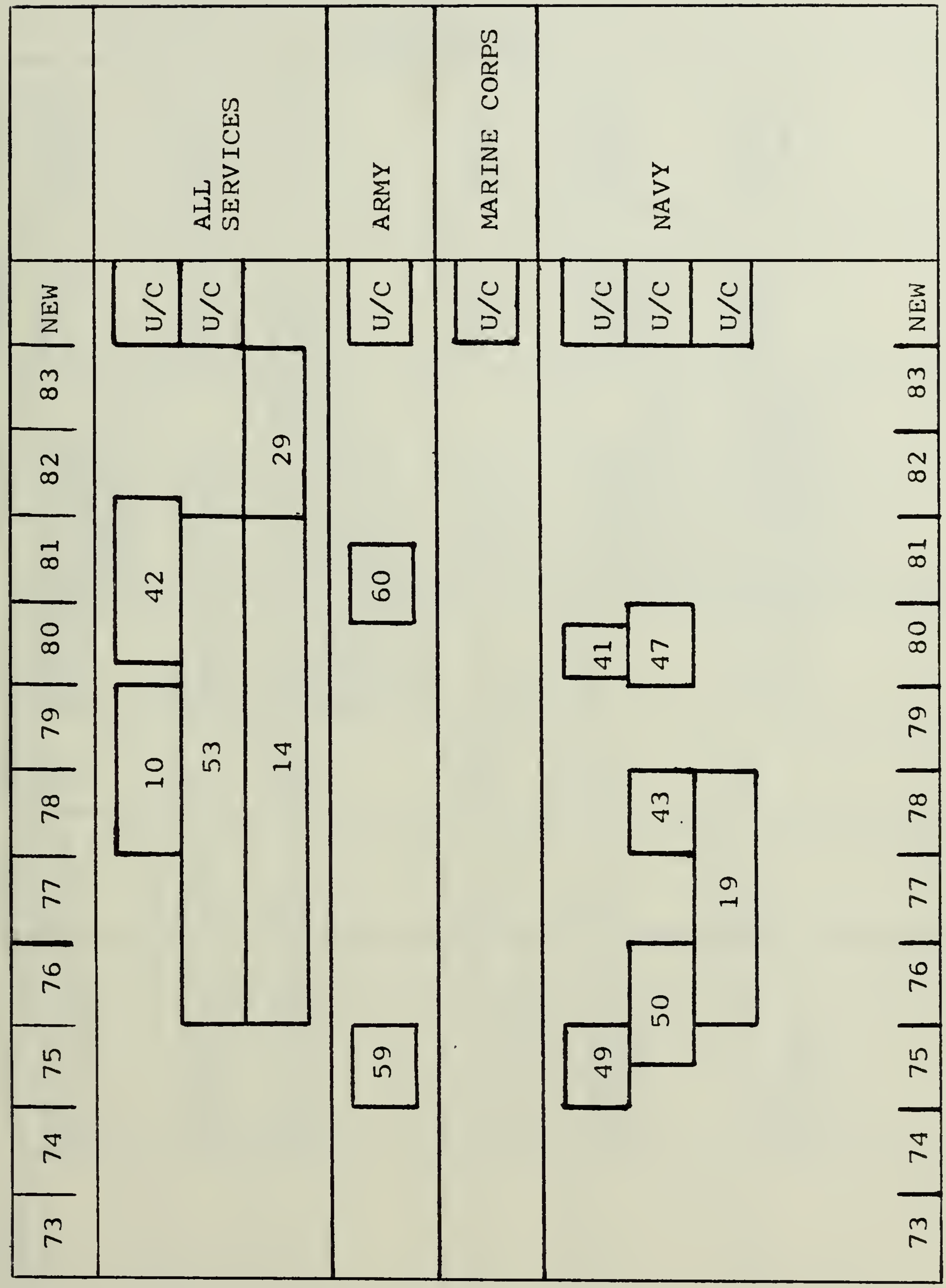

FIGURE 3. MARKET FACTORS

TABLE 2

MARKET FACTORS

STUDY REVIEWED	OBJECTIVE	SERVICE	TIME PERIOD	SAMPLE	PREDICTORS	METHODOLOGY	CRITERIA
Study 14	Examine the market for military recruits.	All Services	1976-1981	HS senior 1976-1981/ 1979 NLS	Propensity, Preferences, Expectations, Unemployment, & Mil/Civ pay ratio	Regression Analysis	Quantity/ Quality of the QMA
Study 53	Investigates the propensity of youth to enlist.	All Services	1976-1981	YATS, Applicant Survey	Propensity & Enlistments	Statistical Analysis	Quantity of QMA
Study 10	Estimates propensity to enlist in the Reserve.	All Services	1978/ 1979	1500 NPS males & 1000 NPS females 17.5-26 years old plus 2000 veterans	Propensity, Age, Education, Race, Military contact, Family status, Employment, & Past military service	Enlistment Process Model	Quantity of Recruits
Study 42	Provide estimates of 23-29 year olds interested in miltary svc.	All Services	APR80-APR82	3411 NPS & 592 PS males	Demographics, Propensity, & Incentives	Telephone Survey	Quantity of Recruits
Study 29	Reviews military enlistment supply models.	All Services	1982/ 1983	Simulation	Demographics, Unemployment, Competition, # of Recruiters, Taste, Pay, DEP, & Draft	Literature Search/ Regression Analysis	Quantity/ Quality of the QMA
Study 59	Analyzes effect of Army recruitment advertising.	Army	1975	700 17-21 year old NPS males	Age, Neighborhood HS grades, Army fit, Propensity, Preferred service & Combat arms	ANOVA/ Chi-square	Quantity/ Quality of Recruits

TABLE 2 CONTD.

MARKET FACTORS

STUDY REVIEWED	OBJECTIVE	SERVICE	TIME PERIOD	SAMPLE	PREDICTORS	METHODOLOGY	CRITERIA
Study 60	Estimate the quality of the over 22 year old market.	Army	FY81	FY81 NPS Accession	Population, Age, Mental category, Unemployment, Accessions, & Education	Statistical Analysis	Quality of Recruits
Study 49	Estimate the Navy recruitment potential of Junior College students.	Navy	1975	40 CY75 students from 20 JCs	Demographics, Aspirations, Navy programs, Recruiters, & Advertising	Questionaire/ Statistical Analysis	Quantity of Recruits
Study 50	Analyze the effect of economic conditions on enlistments.	Navy	JUL75-DEC76	SMSA data JUL75-DEC76	Employment & rate of change, Wages & rate of change, Unemployment, # of Recruiters, SMSA military population, Regional peculiarities, & Minority pop.	Regression Analysis	Quantity/ Quality of Recruits
Study 19	Review key issues in estimating the supply of military recruits.	Navy	JAN76-DEC78	1548 Enlistees	Unemployment, # of Recruiters, Advertising, Demographics, Seasonality, Special events, Quotas, Demand limitations, Inter service competition, DEP, Pay level	Regression Analysis	Quantity/ Quality of Recruits
Study 43	Guage interest of women in military service.	Navy	1978	2376 18-25 year old women	Region of country Age, Race Education, & Job classification	Telephone survey	Quantity Interested Females

TABLE 2 CONTD.

MARKET FACTORS

STUDY REVIEWED	OBJECTIVE	SERVICE	TIME PERIOD	SAMPLE	PREDICTORS	METHODOLOGY	CRITERIA
Study 41	Identify marketing strategies to attract high-quality recruits.	Navy	FEB80-MAY80	Recruiting personnel & target population of NRDs Seattle & San Francisco	Demographics, Propensity, & Individual characteristics	Interview Analysis	Quality of Recruits
Study 47	Explore recruitment of Hispanics by the U.S. Navy.	Navy	1980	21 Navy recruiters 30 Hispanic youth	Advertising, Recruiter characteristics, Hispanic youth characteristics	Questionaire & Interview	Quantity of Hispanic Recruits

Table 2 reveals that the criteria of measurement used by studies of market factors is the quantity and quality of recruits, qualified military available, or some subset thereof. Questionnaires and surveys are widely used to gather data and statistical analysis of some form, regression analysis in some cases, is utilized in about two-thirds of the research. The predictors used are numerous but can generally be classified as demographic or attitudinal in nature (i.e. unemployment, military/civilian pay ratio, preferences, expectations, and propensity to enlist).

2. Other Service Competition

Studies in this category investigate the total recruiting market, quality of that market, and the effect other military recruiting and private industry programs have on the individual services' recruiting efforts. Bonuses and educational incentives to enlist are widely explored here.

Figure 4 shows DOD sponsored research again leads the way with the most completed works, but the other services are well represented in this most explored of the ten factors. The lone exception is again the Air Force whose only research was completed in 1975. Army, Navy, and DOD sponsored research is currently underway. The research is fairly evenly spread during all the AVF years.

The matrix (Table 3) again shows the criteria for these studies to be as expected in recruiting work, the quantity and quality of the supply of recruits available. Regression

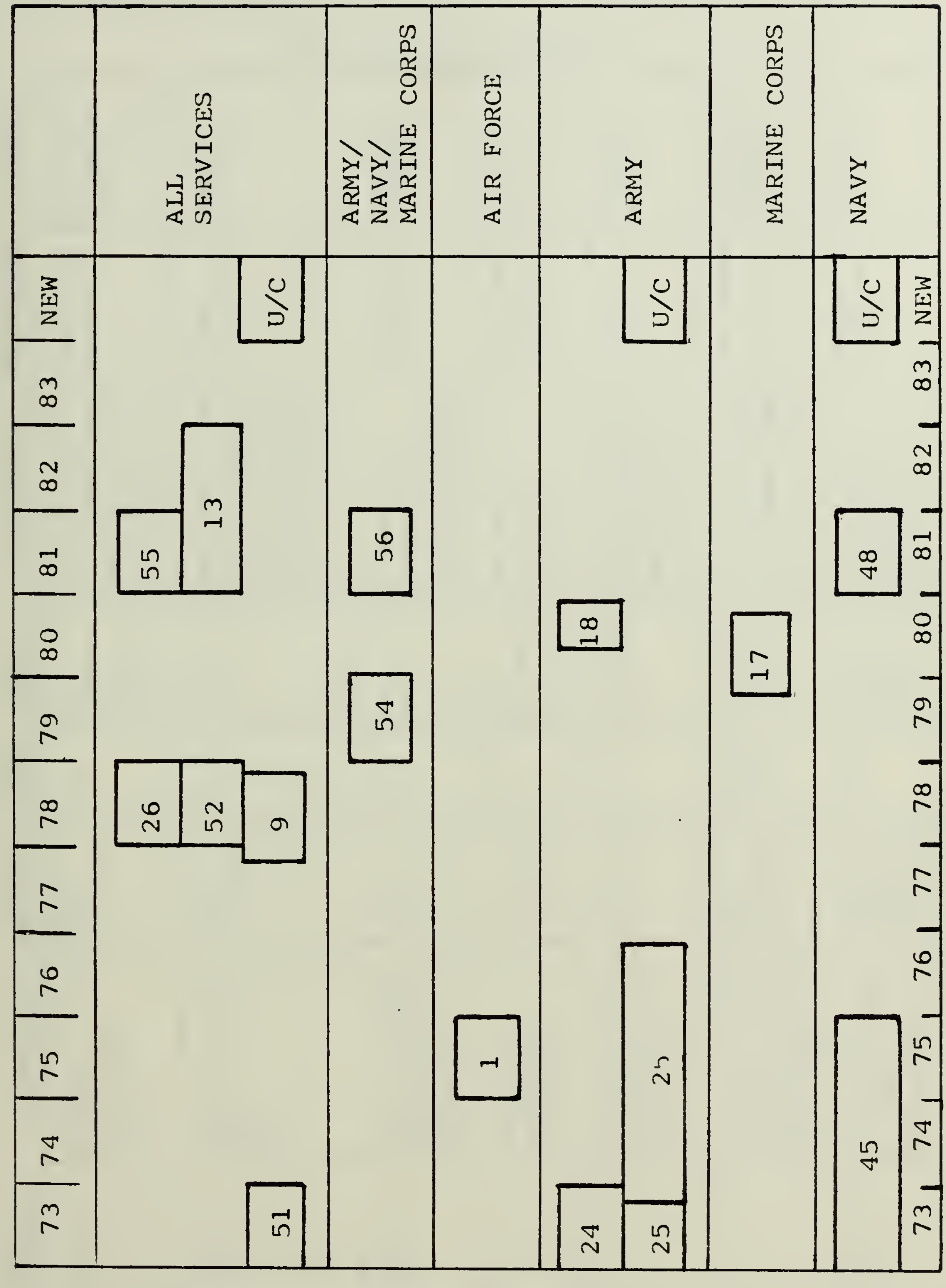

FIGURE 4. OTHER SERVICE COMPETITION

TABLE 3

OTHER SERVICE COMPETITION

STUDY REVIEWED	OBJECTIVE	SERVICE	TIME PERIOD	SAMPLE	PREDICTORS	METHODOLOGY	CRITERIA
Study 51	Examine enlistment incentives.	All Services	1973	1972 Gilbert Youth attitude survey	Self-determination, Vocational training, General education, & Enlistment bonus	Regression Analysis	Quantity/ Quality of Recruits
Study 26	Create a data base of QMA by area.	All Services	1978	1970 State PUS	Geographic area, Education level, Current education status, Age, Sex, Mental category, Race, & Physical qualifications	Linear Programming	Quality of QMA
Study 52	Project supply of high quality males to the services.	All Services	1978	FY78 Recruits	Military pay, Civilian pay, # of Recruiters, Youth unemplymnt	Regression Analysis	Quantity/ Quality of the QMA
Study 9	Propose new enlistment incentives.	All Services	FY78	FY78 Accession	Demographics, & Enlistment Incentives	Literature Review/ Interviews	Quantity/ Quality of Recruits
Study 55	Examine post-secondary schools for potential recruitment.	All Services	1981	1981 Accession	Accession standards, Education, Mental ability, Demographics, & Aspirations	Statistical Analysis	Quantity/ Quality of Recruits
Study 13	Discuss effects of Army recruiting on enlistments.	All Services	1981/ 1982	FY81/FY82 Proxies	# of Recruiters, Civilian/Military pay, Youth Unemployment, & ETA	Regression Analysis	Quantity/ Quality of the QMA
Study 54	To test the attractiveness of VEAP enhancements.	Army/ Navy/ Marine Corps	1979	FY78/FY79 VEAP Participants	School period, Inflation, GI Bill benefit, & Discount rate	Linear Programming	Quality of Recruits

TABLE 3 CONTD.

OTHER SERVICE COMPETITION

STUDY REVIEWED	OBJECTIVE	SERVICE	TIME PERIOD	SAMPLE	PREDICTORS	METHODOLOGY	CRITERIA
Study 56	To test the attractiveness of new enlistment incentives.	Army/ Navy/ Marine Corps	1981	CY81 Recruits	Two year enlistment, VEAP kicker Ultra Veap kicker & IRR option	Regression Analysis	Quality of Recruits
Study 1	Provide a basic understanding of USAF recruiting system.	Air Force	1975	FY74 Recruits	Mental category, Education, & Recruiter characteristics	Systems Analysis/ Review	Quantity/ Quality of the QMA
Study 24	To analyze the Gilbert Youth Surveys.	Army	MAY71-OCT72	Gilbert Youth Surveys MAY/OCT71 MAY/OCT72	Propensity, Age, Recruiter contact Education, & State	Univariate Frequency Tabulation	Quantity/ Quality of Recruits
Study 25	To evaluate Army accession programs.	Army	JUN72-AUG73	JUN72-AUG73 AFEES Survey Data	Mental category, Recruiting, Pay, Local options, Combat Arm option Non-combat Arms option, TV, Print media, & Unemployment	Regression Analysis	Quantity/ Quality of Recruits
Study 2	Discuss recruiting and cooperative education.	Army	FY74/ FY75/ FY76	FY74/FY75/ FY76 Enlistees	Education, Job training, Mental group, Marital status, Pay, & Age	Archival Investigation	Quantity/ Quality of Recruits
Study 18	To review the Reserve bonus program.	Army	JUN80-NOV80	147 Army Reserve Units	Bonus, Education assistance, Unit, & MOS	Audit	Quality of Reserve Personnel

TABLE 3 CONTD.

OTHER SERVICE COMPETITION

STUDY REVIEWED	OBJECTIVE	SERVICE	TIME PERIOD	SAMPLE	PREDICTORS	METHODOLOGY	CRITERIA
Study 17	To analyze USMC enlistment bonus program.	Marine Corps	FY80	FY80 Recruits	Education, Race, Retention, Sex, Success, AFQT, & Bonus program	Regression Analysis/ Logit Analysis	Quantity/ Quality of Recruits
Study 45	To forecast the number of 18 year old males in the post 1993 period.	Navy	1970-1975	1970-1975 males less than 1 yr old & 15-44 yr old females	# of males less than 1 year old & # of 15-44 year old females	Regression Analysis	Quantity of 18 year old Males
Study 48	To evaluate personnel supply models	Navy	JAN81	Simulatn	CNA Model, Duke Model, & Rand Model	Critical Review & Testing	Quantity/ Quality of the QMA

analysis and other statistical measures is the methodology chosen by nearly all of the works in this category. Bonus and educational incentives are widely used as predictors in this category as well as demographics, economic conditions, and individual characteristics. Large samples, particularly youth attitudinal surveys, are predominant. One study conducted in 1980 deals with the supply of personnel available to the reserve and probably accentuates the timing of increased interest in the total force concept.

3. Resource Constraints

This category of study is concerned with annual funding constraints for advertising and support activities such as telephones, vehicles, and recruit travel, lodging, and subsistence. Advertising impacts on recruiter productivity as well as optimal recruiter and advertising distributions for given goal and budget levels are focal points of works in this field.

Figure 5 clearly shows that work done in this area was almost exclusively the domain of the Navy. The bulk of the research was conducted between 1976 and 1980 with the only non-Navy study being accomplished by the Air Force in 1980. The Army and Navy currently have research underway.

Criteria listed in Table 4 are without exception the quantity and quality of recruits. Regression analysis was the methodology chosen by five studies, one used linear programming methods, and the Air Force project emphasized the

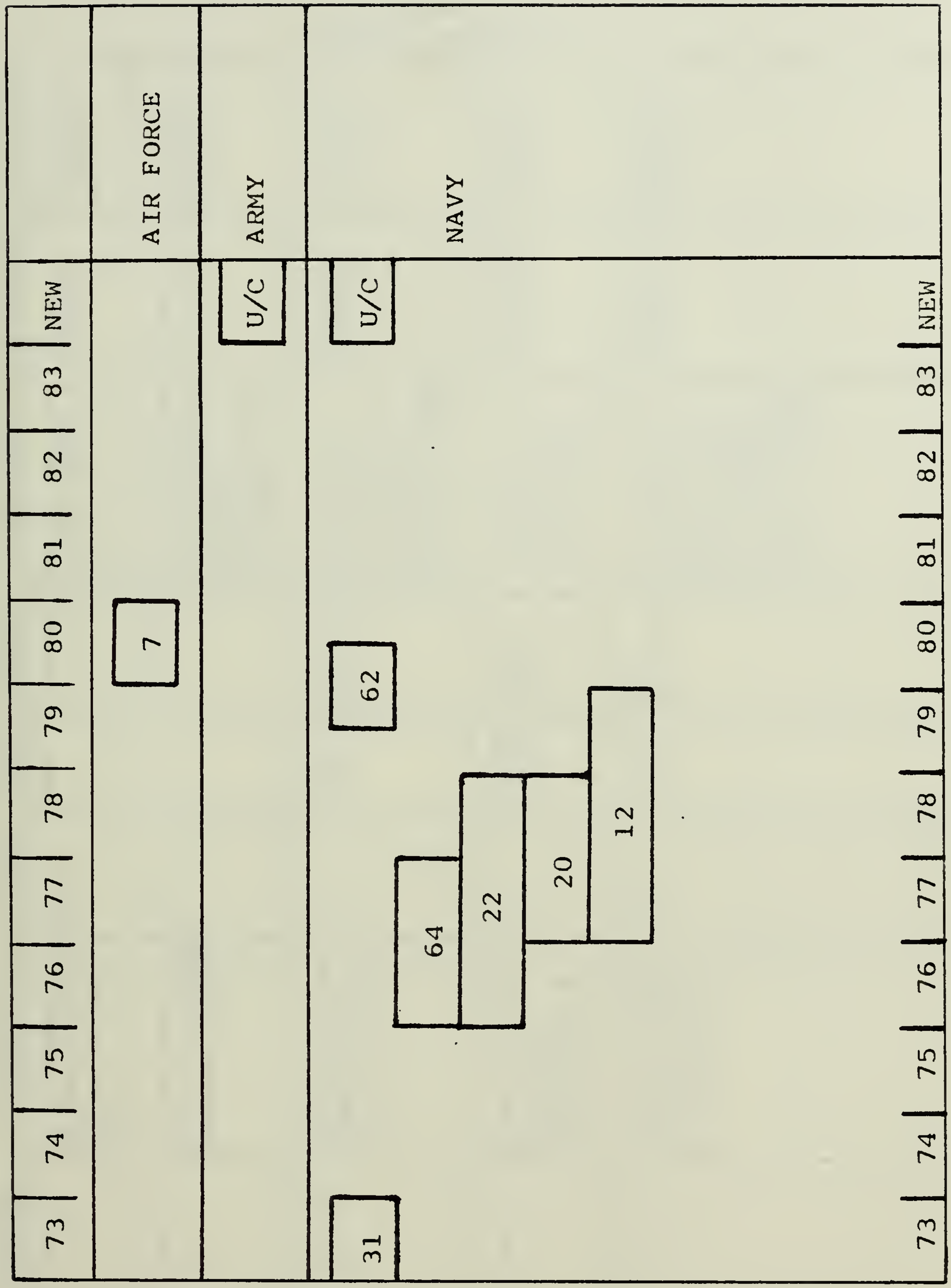

FIGURE 5. RESOURCE CONSTRAINTS

TABLE 4

RESOURCE CONSTRAINTS

STUDY REVIEWED	OBJECTIVE	SERVICE	TIME PERIOD	SAMPLE	PREDICTORS	METHODOLOGY	CRITERIA
Study 7	To determine optimum recruiter & advertising mix.	Air Force	1980	Simulatn	Advertising, # of recruiters, & Quotas	Markov Analysis	Quantity/ Quality of Recruits
Study 31	To estimate the cost of attaining personnel (CAPER)	Navy	1973	Simulatn	Recruiting costs, Training costs, Processing costs, Selection, Validity, Quotas, & Success	Linear Programming	Quantity/ Quality of Recruits
Study 64	To evaluate the effectiveness of Navy advertising.	Navy	CY76/ CY77	CY76/CY77 Recruits	Recruiter aids, Enlistments, Advertising, # of Recruiters, Unemployment, Goals, # of HSDG, # of QMA, & AFQT	Regression Analysis	Quantity/ Quality of Recruits
Study 22	Effort to obtain a balance of advertising expenditures & # of recruiters	Navy	JAN76-DEC78	CY76/CY77/ CY78 Recruits	Recruiter characteristics, Advertising, & Demographics	Regression Analysis	Quality of Recruits
Study 20	To optimize the combined effects of advertising & recruiting.	Navy	1977/ 1978	CY77 Recruits	District, Period, Advertising, District variable, HSGs, Month variable, Year variable, # of Recruiters, GI Bill, Leads, & Mental category	Regression Analysis	Quantity/ Quality of Recruits

TABLE 4 CONTD.

RESOURCE CONSTRAINTS

STUDY REVIEWED	OBJECTIVE	SERVICE	TIME PERIOD	SAMPLE	PREDICTORS	METHODOLOGY	CRITERIA
Study 12	To derive a cost function of recruiting HSG NPS males.	Navy	1977/ 1978/ 1979	1977/ 1978/ 1979 Recruits	# of Recruiters, # of Air Force recruiters, CETA, Unemployment, Pay ratio, Contacts, TV/Radio advertising, & Direct mail/Magazine/ Billboard advertising	Regression Analysis	Quality of Recruits
Study 62	Overview of a Navy field marketing experiment.	Navy	JUN79-JUN80	8000 17-21 year old males & 18-24 year old females	Demographics, Activities, Life goals, Sources of military information, Propensity, & Perceptions	ANOVA/ Ratio Analysis/ Time Series Analysis/ Cross-Sectional Analysis	Quantity of the QMA

Only use of Markov analysis uncovered in this review. The number of recruiters assigned and advertising data were the predominant predictors in this category. Some demographics and individual characteristics predictors were also noted. Sampling was achieved almost exclusively from among new recruits.

4. Policy Constraints

Policy constraints as defined by the Navy Productivity Model are a composite of many concerns. These concerns include monthly phasing, yearly quality targets and ceilings, minority targets, delayed entry pool (DEP) limits, and other variables related to annual manpower requirements and funding constraints.

As is shown by Figure 6, most of this work was accomplished in 1976 and prior years. One Navy study was completed in 1981. The Navy was involved in all five projects completed in this area, four exclusively and one joint effort with the Marine Corps. The four new studies that are underway but as yet unpublished are all funded by the Navy.

Table 5 reveals criteria for three of the studies to be quantity or quality recruits in general but the remaining two are concerned with minority recruits only. Regression techniques are used in two studies and linear programming in another; however, the studies of minority recruiting practices took a more general approach to analysis.

Predictors were heavily demographic, particularly the minority factors, but also included some economics, individual

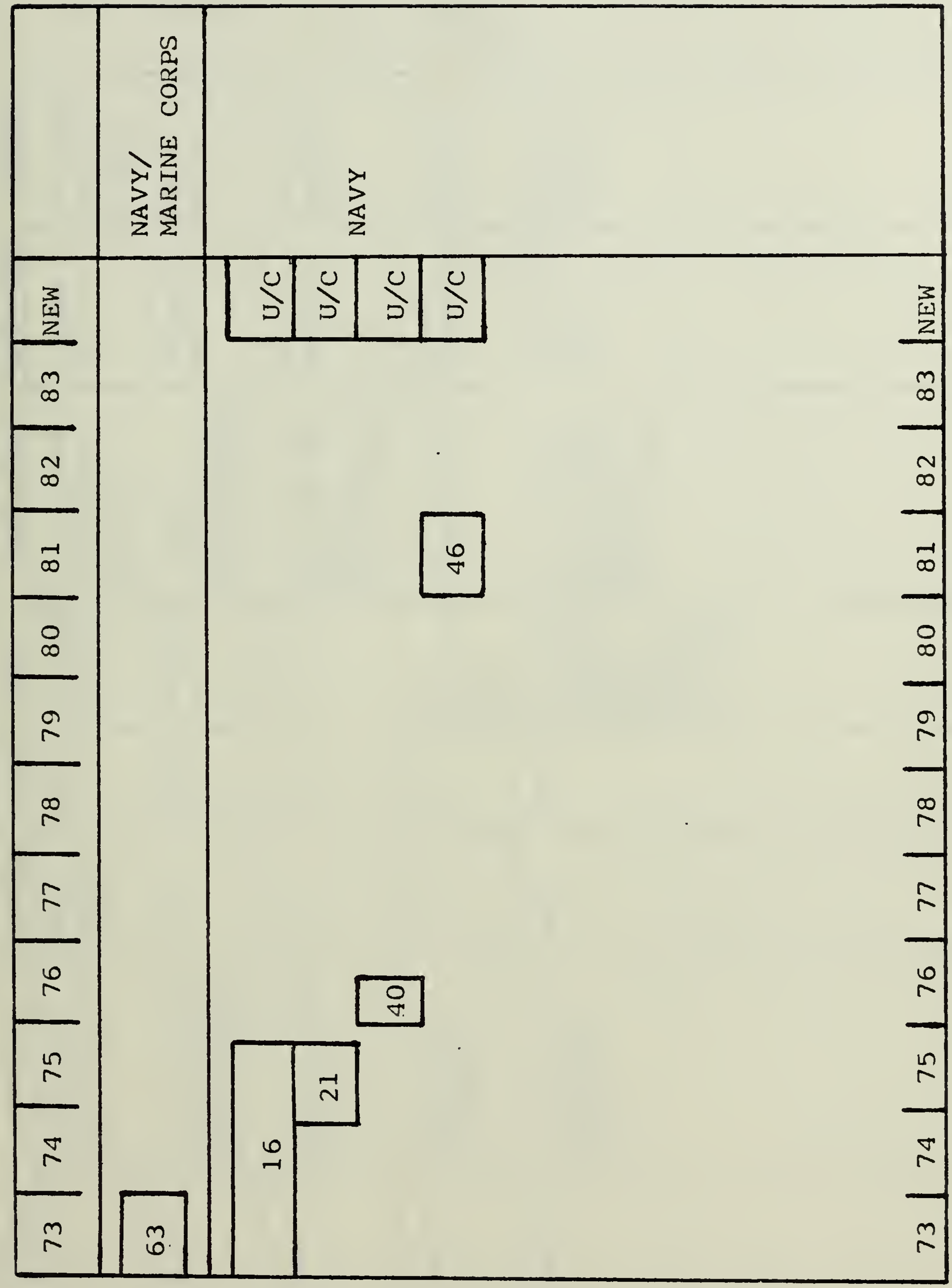

FIGURE 6. POLICY CONSTRAINTS

TABLE 5

POLICY CONSTRAINTS

STUDY REVIEWED	OBJECTIVE	SERVICE	TIME PERIOD	SAMPLE	PREDICTORS	METHODOLOGY	CRITERIA
Study 63	To analyze minority recruiting policies	Navy/ Marine Corps	1962-1973	1962-1973 Minority Enlisted	Briefings, Result of literature search, & Interviews	Systems Analysis	Quantity/ Quality of Minority Recruits
Study 16	To determine if recruiting does affect enlistments of SEHSGs.	Navy	CY73/ FY75	CY73/FY75 Recruits	7 control variables, 4 policy variables, & Population	Regression Analysis	Quality of Recruits
Study 21	To review goaling models for Navy recruiting.	Navy	FY75	FY75 QMA	Urban QMA, Rural QMA, Black QMA, Adjusted unemployment, & True unemployment	Regression Analysis	Quantity/ Quality of Recruits
Study 40	Generate NRC goal matrices by computer.	Navy	APR76	Navy Recruitng Area Eight	QMA, Area quota, & District quota	Linear Programming	Quantity/ Quality of Recruits
Study 46	To examine the poor Hispanic recruitment history.	Navy	1981	Recruiter Personnel & Recruit in San Antonio, Miami, Chicago, New York, & Albquqe	Image, ASVAB, Recruiter meetings, Recruitment of family, Exposure, & Classification	Anthropological Study	Quantity of Hispanic Recruits

characteristics, and quota indicators as well. Samples were drawn from new recruits, again minority recruits for the two studies addressing minority recruiting practices.

5. Market Analysis

After measurement of exogenous factors, market analysis is used to plan recruiter productivity by revising and redistributing recruiting goals and related resources among all recruiting areas. Examples of these goals are accessions, new contract objectives and delayed entry pool (DEP) growth targets. Resource factors include annual allowances for production recruiters and support staff plus advertising and support allotments.

The market analysis synopsis depicted in Figure 7 shows that research was done primarily in the 1976-78 time frame with five studies represented. The exceptions were a study conducted by a Coast Guard student at Naval Postgraduate School in 1974 and a FY81 work funded by DOD concerning all services.

The Navy again led the way with four completed works while the Air Force pursued a 1978 study. There seems to be a void in this area as no ongoing projects were discovered by the literature search.

The stated criteria of the research in this area is again quantity and quality of recruits (Table 6). Regression techniques were applied in nearly all cases reviewed.

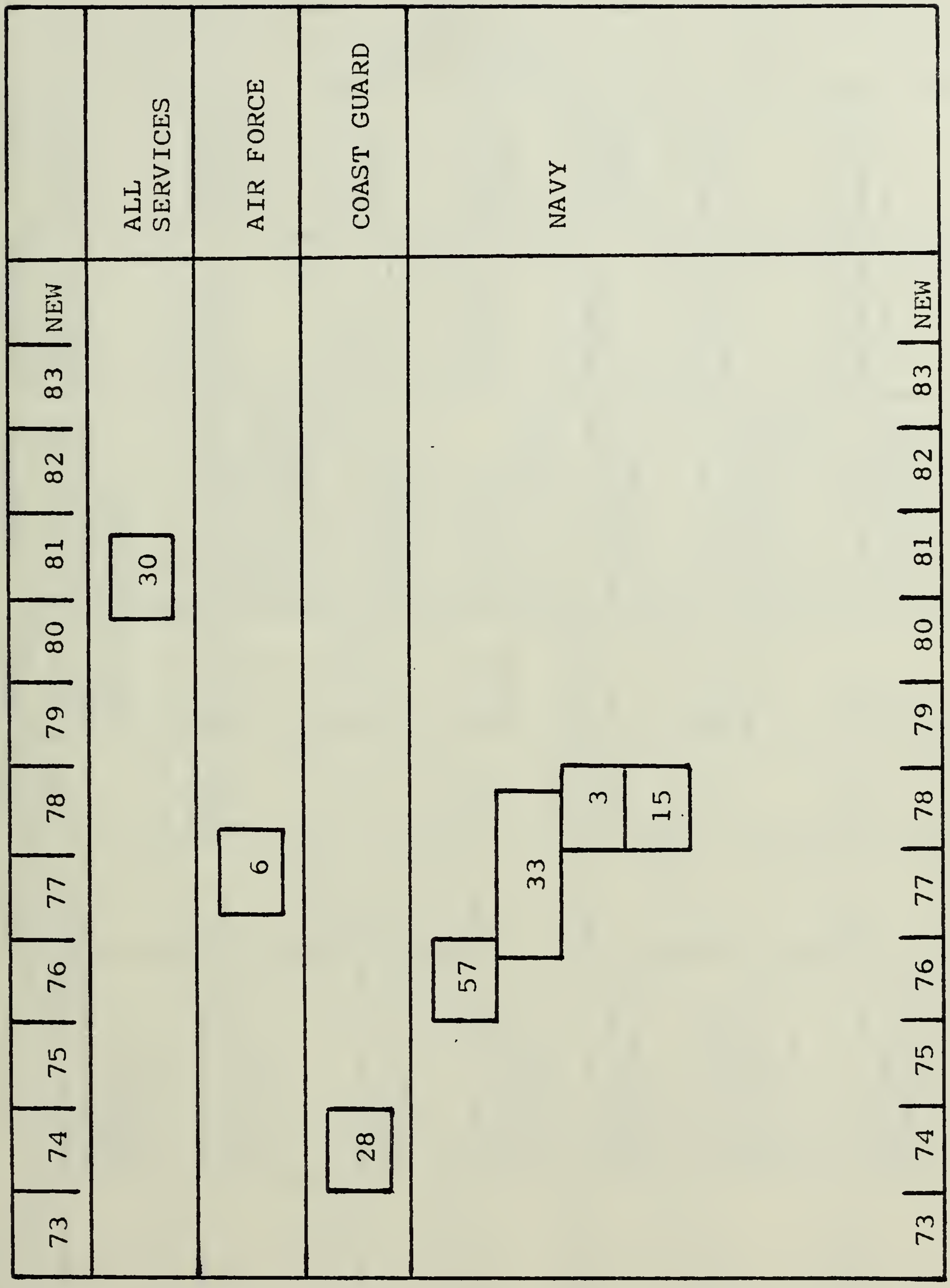

FIGURE 7. MARKET ANALYSIS

TABLE 6

MARKET ANALYSIS

STUDY REVIEWED	OBJECTIVE	SERVICE	TIME PERIOD	SAMPLE	PREDICTORS	METHODOLOGY	CRITERIA
Study 30	Explores the usefulness of market segmentation systems in recruiting.	All Services	FY81	40,378 FY81 Male Recruits	Ethnicity, Age, Housing, Income, Education, & Occupation	Cluster Analysis	Quantity of Recruits
Study 6	Describes Air Force recruiting resource allocation model.	Air Force	APR77-MAR78	807 Recruitng Offices	Recruiting effort Market potential, Advertising effort, Workload, Recruiting Exper., & Prior Exper.	Regression Analysis	Quantity/ Quality of Recruits
Study 28	Review allocation of USCG recruiting funds.	Coast Guard	1974	459 SEP74 Recruits	Recruiter travel, Advertising, Give away items, & Demographics	Linear Analysis	Quantity of Recruits
Study 57	Estimates the effect of Navy advertising on enlistments.	Navy	1976	8500 16-21 year old males	Unsolicited advertising, Attitude, Awareness, & Interest	Regression Analysis	Quantity/ Quality of Recruits
Study 33	Evaluates the effectiveness of advertising on recruiting.	Navy	OCT76-SEP78	CY76/CY77 Recruits	Advertising data, Recruiting data, & Situational data	Regression Analysis	Quantity/ Quality of Recruits
Study 15	Estimates the relationship of HSG recruits to recruiters & advertising.	Navy	CY78	CY71-CY77 HSG Recruits	3 Supply variab., 4 Economic var., 2 Navy policy variables, Population & Recruiters	Regression Analysis	Quality of Recruits
Study 3	Evaluates the effectiveness of recruiting & advertising.	Navy	1978	1976 HSGs	7 Advertising Var., 4 recruiting Var., 2 Situational Var.	Regression Analysis	Quantity of Recruits

Advertising variables, those concerning recruiting/recruiters, and situational variables were most often used as predictors. Demographics and economic conditions enter in here as well. New recruits were utilized for samples in the research.

6. Management and Policy

These are factors employed to direct recruiter productivity in accordance with command objectives within the bounds of exogenous policy and resource constraints. Other management and policy factors such as sales policies are adjusted to hold productivity within established standards of accountability, integrity, and quality of both recruits and recruiters.

Most exploration of these factors was accomplished in 1974 and 1975 as depicted in Figure 8. Three Navy studies plus one by the Marine Corps were completed in that period with the only other research coming in 1977/78, a Navy project. Three new projects are ongoing at this time, one Navy and two by the Army.

The criterion for research in this category is quality of recruiters for the most part (Table 7). Quantity and quality of recruits is cited in one case. The methodology employed in three works is regression analysis. Analysis of variance (ANOVA) was performed in one and the remaining inquiry used a full systems analysis technique.

Recruiter characteristics and demographic variables were the predominant predictors along with goals and other

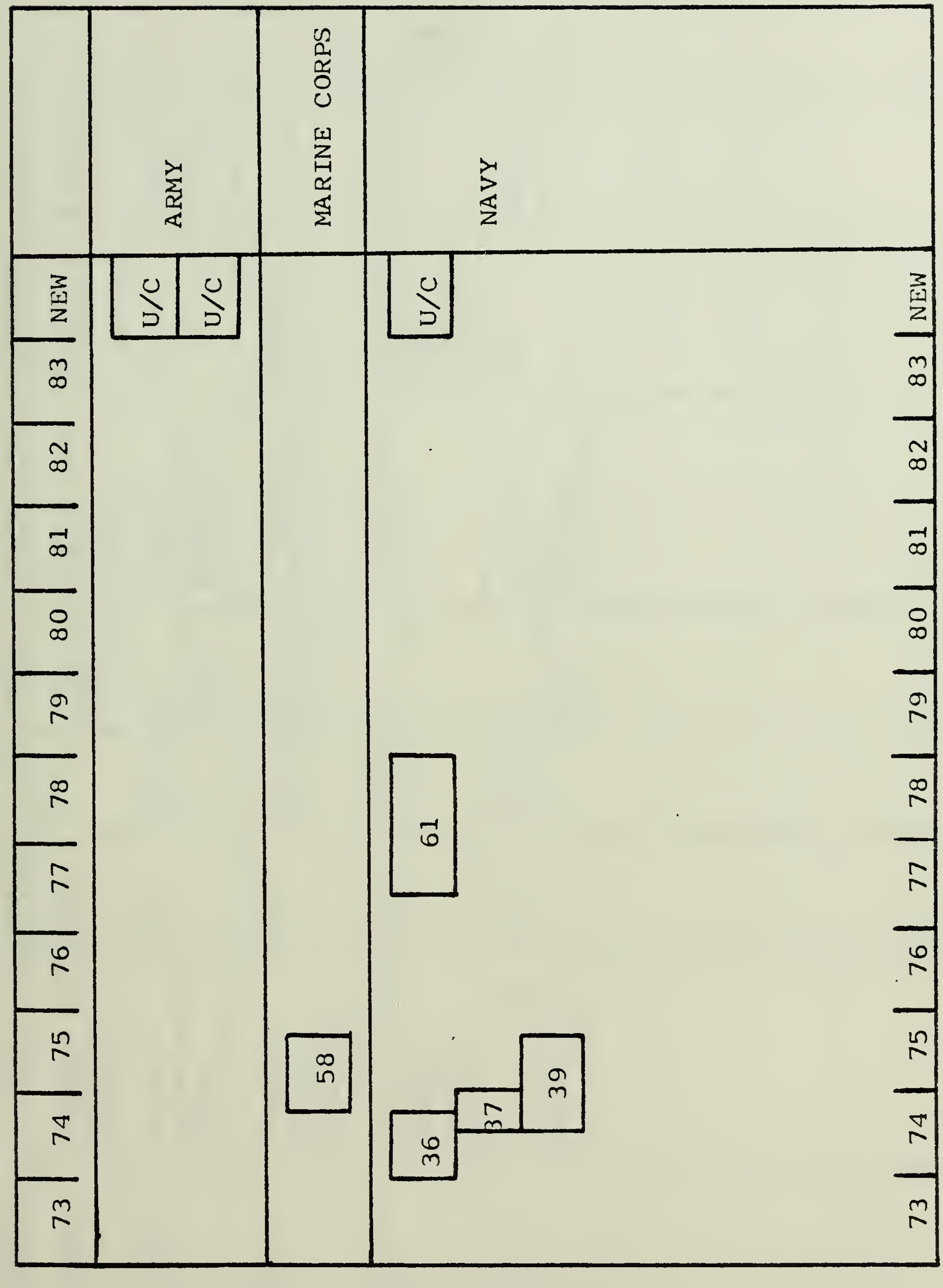

FIGURE 8. MANAGEMENT AND POLICY

TABLE 7

MANAGEMENT AND POLICY

STUDY REVIEWED	OBJECTIVE	SERVICE	TIME PERIOD	SAMPLE	PREDICTORS	METHODOLOGY	CRITERIA
Study 58	To analyze USMC recruiter productivity.	Marine Corps	FY75	FY75 California Recruits	12 Public High School variables	Regression Analysis	Quality of Recruiters
Study 36	Provide a systems analysis of Navy recruiting	Navy	JAN74-SEP74	Navy Recruitng Command	Recruiter characteristics & Enlistment standards	Systems Analysis	Quantity/ Quality of Recruits
Study 37	Attempts to measure recruiter productivity.	Navy	JUN74-OCT74	268 California Recruiters	Recruiter characteristics & Demographics	Regression Analysis/ ANOVA	Quality of Recruiters
Study 39	Development of techniques for measuring recruiter performance.	Navy	JUN74-AUG75	24 Recruiters	8 Performance variables	Regression Analysis/ Multi-Dimensional Scaling	Quality of Recruiters
Study 61	To measure and quantify Navy recruiting effectiveness.	Navy	MAY77-DEC78	345 Recruiters from 3 NRDs	Demographics, Goals, & Recruiter characteristics	ANOVA	Quality of Recruiters

performance variables. Samples for four of the five examinations were drawn from recruiters, the Marine Corps sampled FY75 California recruits in the fifth.

7. Management Information and Tracking Systems

These widely used computer-based subsystems monitor and report a hierarchy of factors such as goal attainment, recruiter productivity, and station operating efficiencies as they affect the established plans and policies of the command. Personnel/job match enhancement programs are categorized here.

Very little investigation of these subsystems has been attempted. Figure 9 divulges only two early attempts, in 1973 and 1976, by the Air Force and one Navy program running through fiscal years 1979, 1980, and 1981. While completed research is sparse, five new inquiries are underway, one Navy, two Army, and two DOD funded projects. The emergence in recent years of greatly enhanced computer capabilities has undoubtedly increased the viability of these information systems. As a result, exploration of these new technologies and their ability to improve existing equipments is well underway.

The criterion here is quite different from previous categories in that maximum utilization is the desired measurement as is depicted in Table 8. Regression analysis techniques were employed in the Air Force writings. Job characteristics and individual aptitude characteristics were

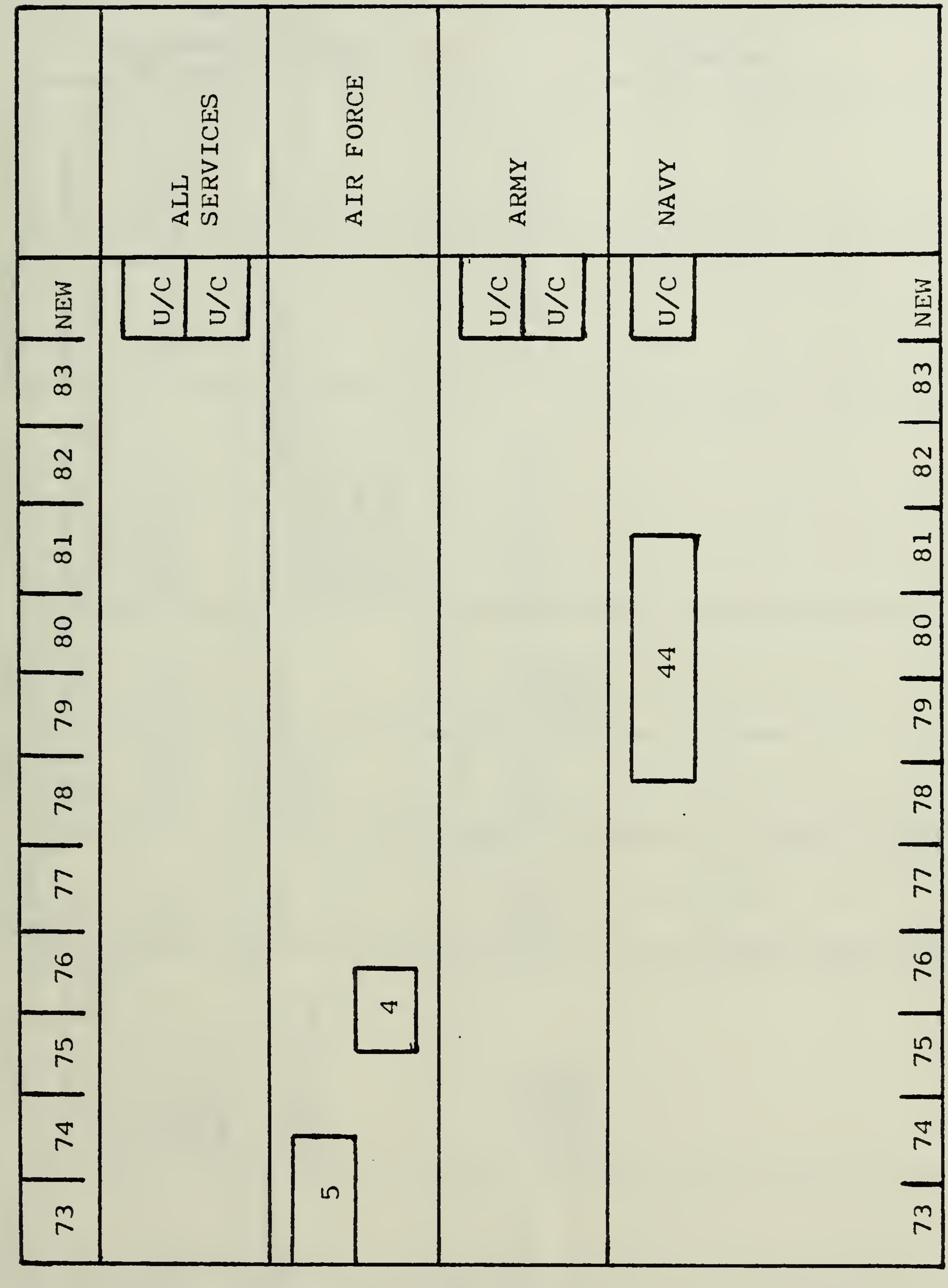

FIGURE 9. MANAGEMENT INFORMATION AND TRACKING SYSTEMS

TABLE 8
MANAGEMENT INFORMATION AND TRACKING SYSTEMS

STUDY REVIEWED	OBJECTIVE	SERVICE	TIME PERIOD	SAMPLE	PREDICTORS	METHODOLOGY	CRITERIA
Study 5	To enhance the person/job match in the Air Force.	Air Force	JUL71-JUN74	FY71-FY74 Recruits	Aptitude, Sex, Accessions, Race, & AFQT	Regression Analysis	Maximum Utilization
Study 4	Weights policy judgements affecting (APDS-PROMIS).	Air Force	JUL75-JUL76	FY75 Recruits	Aptitude, Job difficulty	Regression Analysis	Maximum Utilization
Study 44	Documents the concept and design of NPAS.	Navy	SEP78-SEP81	Simulatn	Personal ability, Preference, Goals Interests, Job Priorities, Objectives, Training, & Requirements	Computer Match	Maximum Utilization

TABLE 9
INCENTIVES

STUDY REVIEWED	OBJECTIVE	SERVICE	TIME PERIOD	SAMPLE	PREDICTORS	METHODOLOGY	CRITERIA
Study 34	Examines recruiter incentive programs.	Marine Corps	1969-1974	FY69-FY72 & FY74 Marine Corps	Education, LOS, & Mental group	Statistical Analysis	Quality of Recruits

the predictors of choice in these analyses. Again samplings of recruits were used and the Navy research employed simulation techniques rather than actual samples.

8. Incentives

Recruiter incentives can be used to stimulate the productivity of both individual recruiters and recruiting organizations as a whole. Certain local programs and awards for recruiter of the year reward accomplishments of individual recruiters while national competition systems recognize organizational achievement.

This category is the least researched of all the factors of recruiting. Figure 10 displays only one study, a Marine Corps investigation of recruiter incentive programs performed from 1969-1974. Of equal concern is the total absence of any current exploration of this subject.

The elements of the study are exhibited in Table 9. The criterion of this inquiry is quality recruits. The technique employed was statistical analysis using lenth of service (LOS), education level, and mental group as predictors. The data was drawn from the Marine Corps during fiscal years 1969-72 and FY74.

9. Selection

This subsystem attempts to enhance productivity by improving the quality of the recruiter force. Key factors here are careful screening and testing of volunteers for recruiting duty as well as maintaining a career recruiter

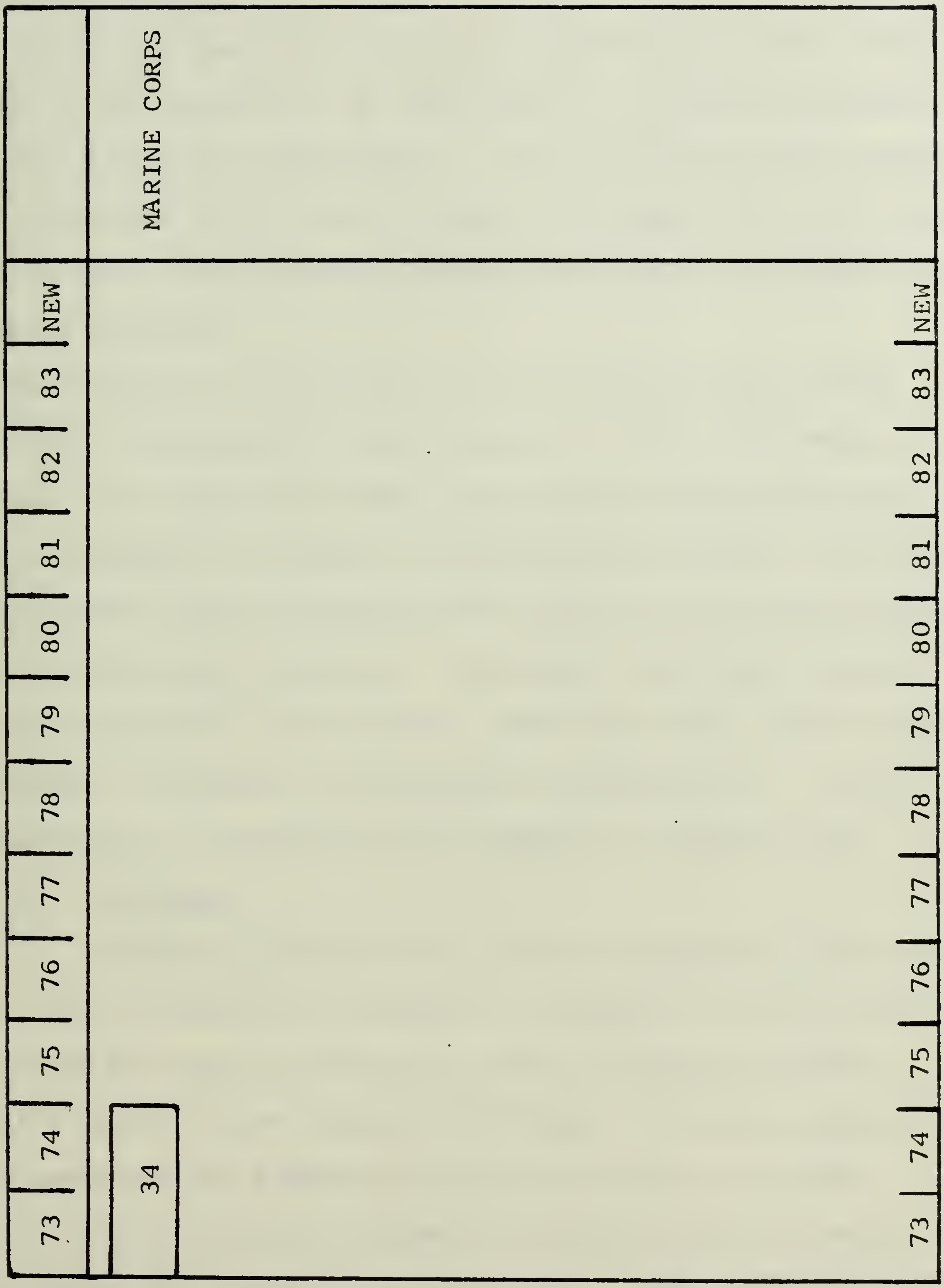

FIGURE 10. INCENTIVES

force to conserve and expand corporate knowledge and to retain that expertise.

Figure 11 displays the seven completed and three ongoing works in the selection of recruiters. All services except the Air Force are represented. All of the existing research was completed in 1979 and earlier. The Army, Navy, and the Marine Corps are currently conducting studies to update this area of endeavor.

The quality of recruiters is the criterion for every treatment addressed in this category. Table 10 reveals a variety of methods that were used such as regression analysis, factor analysis, analysis of co-variance (ANCOVA), surveys, one archival investigation, and a multi-dimensional scaling (MDS)/clustering technique. Biographic variables, personality assessment, and interest inventory items, particularly vocational interest, are employed as predictors. Various combinations of recruiters are sampled in these works.

10. Training

Potential productivity can be increased with training. This simplistic statement is backed by the fact that all services employ intensive initial training programs usually four to five weeks in duration. Recruiter qualification programs and advanced training are also provided.

As Figure 12 plainly shows, no research was uncovered concerning the training of recruiters. Both the Army and Navy are currently performing studies in this area.

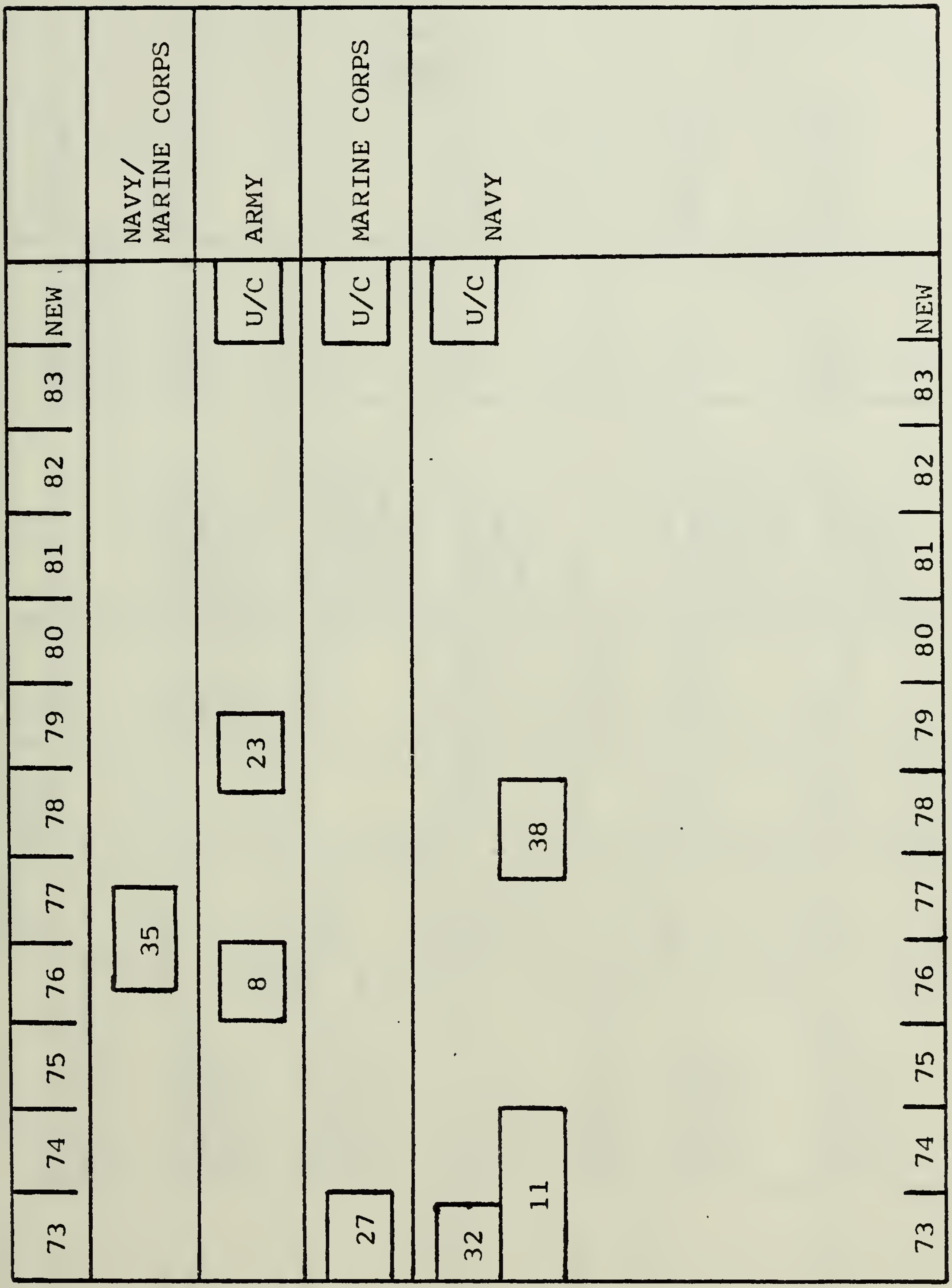

FIGURE 11. SELECTION

TABLE 10

SELECTION

STUDY REVIEWED	OBJECTIVE	SERVICE	TIME PERIOD	SAMPLE	PREDICTORS	METHODOLOGY	CRITERIA
Study 8	Describes task diminsions of Army recruiters and counselors.	Army	1976	110 Recruiter	150 Tasks	Multi-Dimensional Scaling (MDS) & Clustering	Quality of Recruiters
Study 23	Investigates use of assessment centers for selecting recruiters.	Army	FY79	552 Male & 60 Female Recruiters	Biographics, Personality assessment, & Interest Inventory	Archival Investigatn/ ANCOVA	Quality of Recruiters
Study 27	Investigates the factors that influence productivity of USMC recruiters.	Marine Corps	1973	259 USMC Recruiters	9 Individual characteristics, 5 Deployment Variables, & 2 Performance Variables	Regression Analysis	Quality of Recruiters
Study 35	Develop predictors of recruiter performance.	Navy/ Marine Corps	MAY76-AUG77	329 Navy/ 118 USMC Recruiters	Biographics, Personality, & Interest Inventory	Factor Analysis	Quality of Recruiters
Study 32	Improve recruiter selection by use of SVIB.	Navy	1972	360 Navy Recruiters	SVIB	Cross-Validation	Quality of Recruiters
Study 11	To identify attributes of effective recruiters.	Navy	1973/ 1974	49 San Francisco Recruiters	Attitude, AFQT, Assignment, Job satisfaction, Experience, & Performance evaluations	Survey Analysis	Quality of Recruiters
Study 38	Describes test for selecting recruiters.	Navy	OCT77-NOV78	194 Recruiters	Personality assessment & Vocational interest	Factor Analysis	Quality of Recruiters

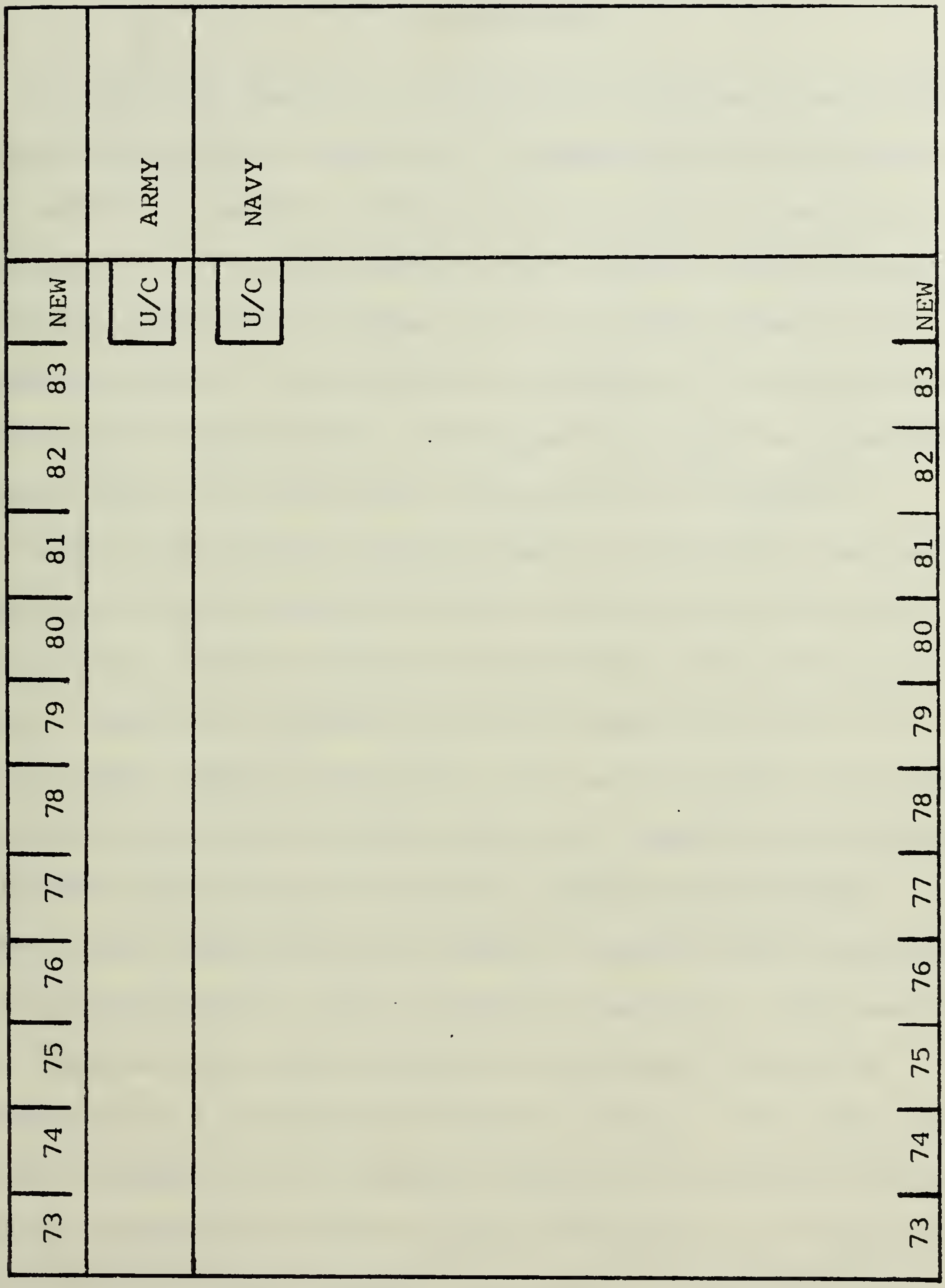

FIGURE 12. TRAINING

IV. CONCLUSION

As stated in Chapter I introductory remarks, the purpose of this thesis is to construct a comprehensive and systematic review of existing works on recruiting and recruiter productivity. The objective of this thesis is not to provide a critical review of any one or all of these studies, but rather to identify areas where the research is thin or nonexistent and where further investigation might be beneficial. In that light, the following conclusions are offered.

Within the military establishment, much effort has been expended to better understand the ins and outs of military recruiting. Of the studies identified by the literature search, the Navy conducted far more completed works (31) and has more research underway (15) than the other services. One explanation might be that the local search was conducted using Navy facilities at the Naval Postgraduate School. However, the three national computer searches were conducted by organizations not administered by the Navy. DOD sponsored many explorations, particularly in exogenous factors of interest to all services and DOD as a whole. The Army appears to have stepped up the research effort and currently has more studies underway (12) than it has published (5). The extreme paucity of Air Force research uncovered by the literature search could possibly be due to the fact that historically

the Air Force has had far fewer problems in attracting recruits in sufficient numbers and of high quality than the other services.

It is recognized that much work is unpublished, internal to an individual service, or not listed in national defense information libraries and computers. This in itself offers opportunities for further exploration in search of existing works using alternate and/or additional literature search techniques.

The four exogenous factors (market factors, other service competition, resource constraints, and policy constraints) were the primary areas of exploration in forty-one (41) of the sixty-four (64) studies reviewed, nearly two-thirds of the total (Figure 2). Additionally, sixteen (16) of twenty-nine (29) ongoing works uncovered by the literature search are concentrated in these areas external to the services. A likely explanation is that far less was known about these than other factors when the military had to venture forth and compete for personnel without the aid of conscription. These factors are external to the individual services and therefore essentially beyond their control.

Another determination is that these factors, especially Market Factors and Other Service Competition, are extremely dynamic. This is reflected by the constantly changing demographics, economic conditions, youth attitudes, size and quality of the available youth cohort, Congressional and

public support, youth awareness of the military, and the needs of the services.

Market Factors (Figure 3) and Other Service Competition (Figure 4) are very well researched, both in completed works and in efforts currently underway. An exception to this is the Air Force and this exception could be one possible avenue for further exploration.

The category of Resource Constraints (Figure 5) is the one area of the four external factors where the research could be considered thin. Although both the Army and Navy have funded projects here, additional inquiry might prove beneficial. While Policy Constraints (Figure 6) has been the subject of some investigation in the distant past with four projects now underway, all studies completed have been Navy studies. Opportunities for investigation with respect to the remaining services seem plentiful. Neither category has been studied during the years of the Reagan administration. Exploration here is most likely to uncover some very different policies and budgetary attitudes with respect to military spending and recruiting practices.

Endogenous factors are less well researched (Figure 2). Only twenty-three (23) published writings were uncovered concerning these six factors. Thirteen (13) funded projects are ongoing. This finding suggests that the individual services and recruiting commands either are much more comfortable with their corporate knowledge in these areas or

that much research was conducted internally and is unpublished, unavailable for general comsumption, or just not listed in defense information systems.

Market Analysis as related to distribution of goals, recruiting resources, and advertising resources was well covered by the Navy during the 1976-78 time frame along with one Air Force study (Figure 7). The lone Coast Guard work reviewed falls into this category. Since that time there has been only one exploration, that by DOD in FY81. Since no new or continuing projects were identified in this area, it would seem to be replete with openings for further investigation. Again, no work has been accomplished during the Reagan administration. The recession of the early 80's was more severe in some geographic areas and will yield quite different results as to goal distribution and resource allocation policy than studies accomplished during better economic conditions.

Recruiter productivity and accountability have been investigated only for the early years of the AVF (Figure 8) and then primarily by the Navy. This factor is currently the subject of two Army and one Navy efforts.

The most noticeable aspect of the Management Information and Tracking Systems area (Figure 9) is that there is more research funded and underway at this time than has been completed in earlier years. Technological advances in computer systems seem to be responsible for this change. Even in view of this current work, the sheer dynamics and speed of

advances in computer capabilities, both in hardware and software applications, might warrant additional exploration beyond that already initiated.

Recruiter incentives (Figure 10) are virtually untouched across all services. If not for a Marine Corps study in the early 70's, the subject would not be addressed. No projects are ongoing. Beyond recruiter of the year and other pat-on-the-back awards, this is a difficult area in which to be innovative. Monetary incentives are in most instances the most effective of incentives, but in a military setting they are virtually impossible to administer due to the politics involved. This is one explanation for the paucity of investigation in recruiter incentives.

Recruiter selection (Figure 11) appears to be well covered with the exception of the Air Force both in the past and in terms of current ongoing works.

Training of recruiters (Figure 12) has not been addressed in the past but research in this area has been initiated by both the Army and the Navy.

As was articulated in Chapter I, the purpose of this thesis was to systematically review the research that has been conducted in this extremely important field of recruiting and recruiter productivity, to identify areas where further study might be beneficial, and to facilitate improved allocation/utilization of research and development funds. These objectives have been accomplished with the end result

being that improved planning and prioritization can be achieved using this review as a tool.

In summation, all areas offer opportunities for further research. The changing environment around us will continue to require investigation of the four extremely fluid exogenous factors. The same is true for factors endogenous to the various recruiting commands; however, exploration of recruiter incentives and training is virtually wide open and market analysis and recruiter selection will require updating. Expanding the literature search to uncover studies missed by virtue of the constraints of this thesis is yet another objective to pursue.

While this thesis should not be considered a definitive or complete compilation of all recruiting research, it is a solid information base from which to launch further inquiry and investigation.

Finally, this thesis can be used as a base model for systematic review and categorization of research in areas other than recruiting. With development of appropriate models, this format will lend itself to virtually any field where extensive research has been conducted and should be utilized as such.

APPENDIX A

The following listings are funded research and development projects that are either unpublished or are continuing works that are presently ongoing. The studies are presented by Research Category and listed alphabetically by Work Unit Title within those areas. Eight of the ten factors of the Navy Productivity Model are represented, missing are Market Analysis and Incentive Programs. The listings include the Work Unit Title, Responsible Organization, Performing Organization, and the Principal Investigator.

Work Unit Title:
AFEES Survey

Responsible Organization:
Assistant Secretary of Defense (MRA&L)

Performing Organization:
Rand Corporation

Principal Investigator:
Doering, Z.

Work Unit Title:
The All-Volunteer Army: Research Issues and Research Strategies (Tech Base)

Responsible Organization:
Army Research Institute

Performing Organization:
Northwestern University

Principal Investigator:
Moskos, C.

Work Unit Title:
Alternative Methods To Increase Reserve Accession Supply

Responsible Organization:
Assistant Secretary of Defense (MRA&L)

Performing Organization:
Mathtech Inc.

Principal Investigator:
Cushen, W.

Work Unit Title:
Exploiting The Supply

Responsible Organization:
Marine Corps Development and Education Command

Performing Organization:
Navy Personnel Research and Development Center

Principal Investigator:
Larson, O.

Work Unit Title:
Navy Manpower R and D: Budget Allocation and Enlistment Prediction for Navy Recruitment

Responsible Organization:
Office of Naval Research

Performing Organization:
Duke University

Principal Investigator:
Morey, R.

Work Unit Title:
Recruiting Prior Service Personnel

Responsible Organization:
Office of Naval Research

Performing Organization:
Pennsylvania State University

Principal Investigator:
Stephenson, S.

Work Unit Title:
Survey of Interest to Join the Military

Responsible Organization:
Navy Personnel Research and Development Center

Performing Organization:
Market Facts Inc.

Principal Investigator:
Heisler, J.

OTHER SERVICE COMPETITION

Work Unit Title:
Cost/Benefit Analysis of the Veteran's Educational Assistance Program (VEAP)

Responsible Organization:
Assistant Secretary of Defense (MRA&L)

Performing Organization:
Human Resources Research Organization

Principal Investigator:
Rosenblatt, R.

Work Unit Title:
Evaluation of Reserve Recruiting and Retention Initiatives

Responsible Organization:
Assistant Secretary of Defense (MRA&L)

Performing Organization:
Rand Corporation

Principal Investigator:
Grissmer, D.

Work Unit Title:
Total Force Personnel Supply

Responsible Organization:
Navy Personnel Research and Development Center

Performing Organization:
Navy Personnel Research and Development Center

Principal Investigator:
Aiken, E.G.

RESOURCE CONSTRAINTS

Work Unit Title:
Enlisted Soldier Recruiting and Retention (ADV DEV)

Responsible Organization:
Army Research Institute

Performing Organization:
Westat Inc.

Principal Investigator:
Goodstadt, B.

Work Unit Title:
Navy Manpower R/D: Effect of Recruiting Personnel and Advertising on Accessions

Responsible Organization:
Office of Naval Research

Performing Organization:
Pennsylvania University

Principal Investigator:
Carroll, V.

POLICY CONSTRAINTS

Work Unit Title:
Civilian Sector Training for Lateral Entry

Responsible Organization:
Navy Personnel Research and Development Center

Performing Organization:
Navy Personnel Research and Development Center

Principal Investigator:
Baker, M.

Work Unit Title:
Lateral Entry

Responsible Organization:
Navy Personnel Research and Development Center

Performing Organization:
Navy Personnel Research and Development Center

Principal Investigator:
Baker, M.

Work Unit Title:
Navy Manpower R and D: Basic Research in Support of Increasing Hispanic Participation in the U.S. Navy

Responsible Organization:
Office of Naval Research

Performing Organization:
Temple University

Principal Investigator:
Rowland, G.

Work Unit Title:
Votech

Responsible Organization:
Chief of Naval Operations

Performing Organization:
    Navy Personnel Research and Development Center

Principal Investigator:
    Baker, M.

Work Unit Title:
Enlisted Soldier Recruiting and Retention (ADV DEV)

Responsible Organization:
Army Research Institute

Performing Organization:
Westat Inc.

Principal Investigator:
Goodstadt, B.

Work Unit Title:
Managing the Recruiter Force (ADV DEV)

Responsible Organization:
Army Research Institute

Performing Organization:
Army Research Institute

Principal Investigator:
Gade, P.

Work Unit Title:
Navy Recruiter Resource Management

Responsible Organization:
Navy Personnel Research and Development Center

Performing Organization:
Personnel Decisions Research Institute

Principal Investigator:
Borman, W.

MANAGEMENT INFORMATION AND TRACKING SYSTEMS

Work Unit Title:
Analysis of User-Computer Interface Feasibility Test for Join (TAS) (ADV DEV)

Responsible Organization:
Army Research Institute

Performing Organization:
Institute for Research

Principal Investigator:
King, R.

Work Unit Title:
Automated Recruit Market System

Responsible Organization:
Assistant Secretary of Defense (MRA&L)

Performing Organization:
Presearch Inc.

Principal Investigator:
Clements, J.

Work Unit Title:
Computer-Assisted Testing, Counseling, and Assignment of Recruits: Project Contract

Responsible Organization:
Navy Personnel Research and Development Center

Performing Organization:
Navy Personnel Research and Development Center

Principal Investigator:
Kroeker, L.

Work Unit Title:
Management Techniques to Improve Recruiting (ADV DEV)

Responsible Organization:
Army Research Institute

Performing Organization:
Army Research Institute

Principal Investigator:
Weltin, M.

Work Unit Title:
Potential Use of Training Reservations Systems of AVF Supply Analysis

Responsible Organization:
Assistant Secretary of Defense (MRA&L)

Performing Organization:
System Automation Corporation

Principal Investigator:
TBD

SELECTION

Work Unit Title:
Management Techniques to Improve Recruiting (ADV DEV)

Responsible Organization:
Army Research Institute

Performing Organization:
Westat Inc.

Principal Investigator:
Goodstadt, B.

Work Unit Title:
Measuring Abilities

Responsible Organization:
Marine Corps Development and Education Command

Performing Organization:
Navy Personnel Research and Development Center

Principal Investigator:
Larson, O.

Work Unit Title:
Recruiter Selection

Responsible Organization:
Navy Personnel Research and Development Center

Performing Organization:
Navy Personnel Research and Development Center

Principal Investigator:
Abrahams, N.

Work Unit Title:
Development, Test, and Evaluation of Recruiting and Training Approaches to Counter Attrition

Responsible Organization:
Navy Personnel Research and Development Center

Performing Organization:
Westat Inc.

Principal Investigator:
Goodstadt, B.

Work Unit Title:
Providing Recruiter Performance Aids (ADV DEV)

Responsible Organization:
Army Research Institute

Performing Organization:
Army Research Institute

Principal Investigator:
Eaton, N.

APPENDIX B

This appendix is comprised of summary abstracts of the sixty-four (64) published works reviewed by this thesis. Labeled Exhibits 1 through 64, they are intended to provide much greater detail than was possible in the chapters of this review. A more complete listing of predictors, samples, methodology, time periods, etc. plus brief summaries and statements of conclusion are included in the following exhibits.

Air War College Report 5667, An Analysis of the USAF System for Recruiting Enlisted Personnel, Lenz, W.A., April 1975.

Service: Air Force Time Period: 1975

Sample: FY74 Recruits

Methodology: System Analysis/Review

Criteria: Quantity/Quality of Recruits

Predictors: Mental category, Education, and Recruiter characteristics.

Summary:

The purpose of this study is to provide a basic understanding of the Air Force recruiting system and to determine whether it can be improved to enhance the quality of the enlisted force. The study is limited to an analysis of the systems for recruiting non-prior service enlisted personnel only.

Conclusion:

The Air Force presently has an effective system for recruiting enlisted personnel. The Air Force does not have a problem obtaining sheer numbers of people to satisfy total manpower requirements.

The quality of the enlisted force will be the central issue for the forseeable future. To enhance quality, the Air Force should require all enlistees to be high school graduates.

Exhibit 1

Air War College Research Report 96, Enhancing Recruiting Through Cooperative Education, Johnson, D.K., April 1977.

Service: Army Time Period: FY74/FY75/FY76

Sample: FY74/FY75/FY76 Enlistees

Methodology: Archival Investigation

Criteria: Quantity/Quality of Recruits

Predictors: Education, Job Training, Mental Group, Pay, Age, and Marital Status.

Summary:

This study discusses several variations of how a cooperative (work-study) education program could be implemented by the military. Civilian college uses of cooperative education programs to increase their enrollment are investigated.

Conclusion:

This work concludes that because of the greater problem in active and reserve Army recruiting today, a cooperative education program should be developed and offered as an Army enlistment option. The study recommends testing in a limited environment in order to perfect it prior to total application.

Exhibit 2

Arima, J.K., Navy Recruiting Advertising: Yes, It Works--Some, Paper prepared at Naval Postgraduate School, 1978.

Service: Navy Time Period: 1976-1977

Sample: 1976 High School Graduates

Methodology: Stepwise Multiple Regression

Criterion: Quantity Recruits

Predictors: Advertising (TV, Radio, Magazines, Direct Mail, Outdoor, Newspapers, Supplements), Recruiting (Goals, Accessions, Canvassers, County Population Base), And Situational (Number of HSGs, Unemployment).

Summary:

This study attempts to evaluate the effect of Navy advertising on recruiting. Advertising data for 1976 and 1977 is used for the regression analysis using the SPSS package.

Conclusion:

A linear, least squares model was fitted to the data and showed that Navy advertising is playing a significant role in its recruiting efforts. These initial results suggested that several additional analyses be utilized to investigate the mechanisms involved using a more sophisticated model, less aggregated advertising variables, and the inclusion of other socioeconomic factors.

Exhibit 3

Air Force Human Resources Laboratory TR 77-47, Creating Mathematical Models of Judgement Processes: From Policy-Capturing to Policy-Specifying, Ward, Jr., J.H., August 1977.

Service: Air Force Time Period: JUL75-JUL76

Sample: FY75 Recruits

Methodology: Regression Analysis

Criterion: Maximum Utilization

Predictors: Aptitude and Job Difficulty.

Summary:

This study attempts to develop mathematical models that will capture policy makers judgements of value to the Air Force of recruiting a particular person for a particular job. Two methods were investigated, (1) policy maker explicitly specifies weights to be used and (2) policy-capturing or implicit determination of the numerical weights to be used by APDS-PROMIS.

Conclusion:

Policy-specifying has been shown to be a practical approach to obtaining implicit weights to be combined into a pay-off value. Policy-specifying, combined with policy-capturing can provide a useful policy-development system.

Exhibit 4

Air Force Human Resources Laboratory TR 76-56, Person-Job Match Preliminary Forecasting Program, Solomon, W.B., July 1976.

Service: Air Force Time Period: JUL71-JUN74

Sample: FY71-FY74 Recruits

Methodology: Regression Analysis

Criterion: Maximum Utilization

Predictors: Aptitude, AFQT, Race, Sex, and Accessions.

Summary:

This study documents a time-series analysis which utilizes the "ratio to trend" method for computing the seasonal variation component of recruiting. This enhances the person-job match by forecasting information concerning the future pool of applicants.

Conclusion:

There are many possible directions for upgrading this basic time-series analysis. As the program stands, the coding is specific and the number of data points acceptable is limited. There is not sufficient sensitivity by the program to differing rates of change within subintervals of the length of the trend line.

Exhibit 5

Air Force Human Resources Laboratory TR 79-55, Recruiting Resource and Goal Allocation Decision Model, Looper, L.T., January 1980.

Service: Air Force Time Period: APR77-MAR78

Sample: 807 Recruiting Offices

Methodology: Regression Analysis

Criteria: Quantity/Quality Recruits

Predictors: Recruiting effort, Market potential, Advertising effort, Prior experience, Recruiting experience, and Workload.

Summary:

This report discusses a research effort exploring the possible uses of mathematical algorithms and allocation techniques to serve as aids in the resource and goal allocation decision process.

Conclusion:

With continued support, such a quantitative scheme for assisting in the resource and goal allocation decision process is one viable means for meeting Air Force accession goals and assuring the ability of the Air Force to remain mission ready. The Air Force Recruiting Service is strongly supportive of this model which will enhance and enlarge the scope of the decision model.

Exhibit 6

Air Force Human Resources Laboratory TR 80-4, Markov Resource Utilization Decision Aid for Air Force Recruiting Service, Moore, M.H. and others, March 1980.

Service: Air Force Time Period: 1980

Sample: Simulation

Methodology: Markov Analysis

Criteria: Quantity/Quality Recruits

Predictors: Quotas, Advertising expenditures, and Number of Recruiters.

Summary:

This report presents a recruiting resource and goal allocation decision model developed for the Air Force. The model uses a Markov probability process to determine the optimum use of recruiting effort and advertising funds to obtain desired recruit input levels. The probability statements are made concerning the likelihood of meeting Air Force recruiting objectives.

Conclusion:

The model does aid in allocating scarce resources to their subordinant recruiting organizations, in assigning recruiting goals, and otherwise in performing their duties. The model is in use by the Air Force and is known as the Air Force Recruiting Aid (AFRA).

Exhibit 7

Army Research Institute TR 77-A5, Dimensions of the Army Recruiter and Guidance Counselor Job, Gilbert, A.C.F., Fischl, M.A., March 1977.

Service: Army   Time Period: MAY-DEC76

Sample: 110 Recruiters

Methodology: Multi-Dimensional Scaling (MDS) and Ward and Hook Clustering Technique

Criterion: Quality Recruiters

Predictors: 150 Job-related Tasks

Summary:

The thrust of this project was to discover the underlying dimensionality of tasks associated with the Army recruiter and guidance counselor jobs. Within the project a recruiter/guidance counselor task list was developed and 101 USAREC personnel familiar with these two jobs sorted the tasks into dimensions according to the tasks' perceived similarity with respect to job function.

Conclusion:

MDS provided four broad task dimensions (Prospecting activities, Publicizing the Army, Selling Army, and Administrative activities). The Ward and Hook analysis yielded a far more differentiated solution, fully 26 clusters of tasks were identified and used to define relatively specific subdimensions of the more general MDS categories.

Exhibit 8

Army War College, New Incentives for Enlistment in the All Volunteer Force, Joy, J.R., May 1979.

Service: All Services Time Period: FY78

Sample: FY78 Accessions

Methodology: Literature Review and Interviews

Criteria: Quantity/Quality Recruits

Predictors: Demographics and Enlistment Incentives.

Summary:

The study is based on the hypothesis that job training and educational benefits are the most attractive enlistment incentives and that foreign military experience with job training and educational benefits have the potential for application as incentives for the U. S. All Volunteer Force.

Conclusion:

It was concluded that job training and educational benefits are the most attractive enlistment incentives for the youth of the 1980-90's and that a program modeled after the West German experience should be implemented. Recommend that contributory VEAP be replaced with a program that would trade 8 semester tuition benefit and 36 months education benefit for two years active duty and four years commitment in the reserve.

Exhibit 9

Associates for Research in Behavior, Inc., Issues Related to Recruitment of Enlisted Personnel for the Reserve Components: 1979 Trackin Study, September 1980.

Service: All Services Time Period: 1978-1979

Sample: 1500 NPS Male and 1000 NPS Females 17.5-26 years old and 2000 Veterans.

Methodology: Enlistment Process Model

Criterion: Quantity QMA for Reserves

Predictors: Propensity, Age, Race, Education, Family status, Employment, Military contact, and Past military service.

Summary:

This study surveys the propensity of non-prior service (NPS) individuals and veterans to enlist in the National Guard and Reserve. The study examines current propensity, changes in propensity over time, demographic and attitudinal factors, responsiveness to potential incentives, and attitudes toward peacetime draft registration.

Conclusion:

Overall positive propensities show declines over time. Propensity is higher if potential enlistees accept the need for the military, desire to work with other people rather than alone, foresee achievement of important life goals through reserve or guard service, and accept the idea of imposing on individuals for the sake of achieving the goals of the society at large.

Exhibit 10

Best, J.B., Wylie, W.J., U. S. Navy Recruiter Attributes and Attitudes: A Survey Analysis, Masters Thesis, Naval Postgraduate School, Monterey, CA, June 1974.

Service: Navy Time Period: 1973/1974

Sample: 49 Recruiters from the San Francisco District.

Methodology: Survey Analysis

Criterion: Quality Recruiters

Predictors: Attitude, Assignment, Job satisfaction, AFQT, Experience, and Performance evaluations.

Summary:

This report summarizes questionnaire responses, recommends consideration of changes to existing Recruiting Command policy and suggests areas of future research. Data was collected from a sample of 49 active U.S. Navy recruiters assigned within the San Francisco Recruiting District, using survey interviews to identify attributes of effective production recruiters.

Conclusion:

Analysis of the data revealed that the most favorable aspect of a recruiting assignment was independent duty. The least desired aspect was public speaking. Over one-third of the recruiters felt their particular stations were overmanned while an equal number considered the station work goals to be too high. Recruiters' images varied widely and revealed diverse grooming interpretations. Hair styles and uniform-of-the-day inconsistencies were magnified by one-fourth of the recruiters being overweight. Only 18% of the respondents considered the recently proposed recruiter special duty assignment pay to be an "incentive" necessary to increase their effectiveness.

Exhibit 11

Center for Naval Analyses PP389, A Minimum Recruiting Cost Function for Male High School Graduates, Clay-Mendez, D., January 1982.

Service: Navy Time Period: 1977/1978/1979

Sample: 1977/1978/1979 Recruits

Methodology: Regression Analysis

Criterion: Quality Recruits

Predictors: Number of recruiters, Pay ratio, Number of Air Force recruiters, CETA, Unemployment, Contacts, TV/Radio advertising, Magazine/billboard/direct mail advertising.

Summary: This paper derives a cost function which specifies the minimum cost to the Navy of the recruiters and advertising necessary to attract different numbers of non-prior service male recruits who are high school graduates. This cost function is derived from a data base and a preliminary model of HSG recruit supply developed at CNA for the Navy Enlisted Supply Model.

Conclusion:

Findings indicate that because of increasing marginal recruiting costs, economic or demographic changes which would result in a relatively small percentage decline in the number of HSG recruits will have a disproportionately large impact on the costs of meeting fixed recruiting goals.

Exhibit 12

Center for Naval Analyses CNA 82-1487, The Effects of Army Recruiting Initiatives on Enlistment Contracts, Lockman, R.F., 24 September 1982.

Service: All Services Time Period: 1981/1982

Sample: 1981/1982 Proxies

Methodology: Regression Analysis

Criteria: Quantity/Quality of the QMA

Predictors: Number of recruiters, Civilian/military pay for youth, Youth unemployment rate, and Federal spending for youth training programs by the Employment and Training Administration (ETA).

Summary:

Study tried to estimated the effect of the Army's recruitment initiatives on the number of 1-3U high school diploma graduates contracts in all four services for FY80 through FY82 to date. To do this, the study adapted an enlistment supply model developed earlier by CNA that was widely briefed to the Navy and other organizations a year ago. The model predicts contracts for all of the services by Navy Recruiting Districts.

Conclusion:

Ultra-VEAP and an increase in the number of Army recruiters has enabled the quality of Army accessions to increase dramatically. Neither Navy or Air Force has been affected by these factors yet, but look ahead to gauge the competitive edge they can offer the Army. If recruiting budgets are cut (as they have been for Navy in 1982 and 1983), and if military pay doesn't keep up with civilian pay, Navy recruiting will be affected. As the decade wears on, the economy turns around, the youth population shrinks, and Navy seeks to expand, the Army competitive edge in recruiting 1-3U HSDGs will increase. It will affect not just the numbers of recruits, but quality as represented by 1-3U HSDGs.

Exhibit 13

Center for Naval Analyses CNA 82-1137, The Market for Military Recruits, Quester, A.O., Lockman, R.F., September 1982.

Service: All Services Time Period: 1976-1981

Sample: 1976-1981 High School Seniors and the 1979 National Longitudinal Survey.

Methodology: Regression Analysis

Criteria: Quantity/Quality Recruits

Predictors: Propensity, Preferences, Expectations, Unemployment, and Military/civilian pay ratio.

Summary:

This study looks at the size of the youth population and the demand that the military makes on it starting in 1960 and then projecting out to the year 2000.

The focus is on four items from the surveys of American high school seniors from 1976 through 1981. These questions dealt with likelihood of enlistment, preferences for enlistment, and expectations about military careers. Responses to these questions for both sexes were compared with the unemployment rates for 16-19 year-olds and with the ratio of military to civilian pay for 15-19 year-olds.

Conclusion:

While the future promises smaller numbers of young men than are currently available, these reduced cohorts are not unprecedented. Indeed, there were considerably fewer young men in the sixties than there will be in any future year in this century. Relatively large fractions of youth are favorably disposed toward military service. In fact, current accession goals require only one-third the young males who say they are "likely to enlist".

Exhibit 14

Center for Naval Analyses CRC 409, Recruiters, Advertising, and Navy Enlistments, Goldberg, L., October 1979.

Service: Navy Time Period: CY78

Sample: CY71-CY77 High School Graduate Recruits

Methodology: Regression Analysis

Criterion: Quality of Recruits

Predictors: Number of recruiters, Population, Quotas, Advertising, Population awareness, Pay, Unemployment, GI Bill, and Ending of the draft.

Summary:

This study estimates the relatioship between enlistments by high school graduates in 1971-1977 and the number of recruiters and level of advertising expenditures. In measuring the effects of recruiters and advertising, allowance is made for changes in economic and demographic factors and Navy goals and policies. To check the model, a prediction test is undertaken with quarterly data from CY78.

Conclusion:

Both recruiters and advertising increase the number of enlistments by high school graduates. Unlike recruiters, advertising generates high school graduate enlistments in the lower mental groups. While recruiters affect enlistments in the current year, advertising's effects are felt mostly in future years. The variable having the greatest effect on the number of enlistments by high school graduates is quota.

Another factor that has a sizable effect is unemployment. A one point increase in the youth unemployment rate generates about 1700 high school graduate enlistments, almost 75 per cent in the upper mental groups.

Exhibit 15

Center for Naval Analyses CNS 1073, Recruiters, Quotas, and the Number of Enlistments, Jehn, C., Shughart, W.F., December 1976.

Service: Navy Time Period: CY73 & FY75

Sample: CY73 & FY75 Enlistees

Methodology: Regression Analysis

Criterion: Quality Recruits

Predictors: Population, Control variables (black, urban, education, unemployment, industrial mix, per capita income, and net migration), and Policy variables (recruiters, total personnel, factored recruiters, and quotas).

Summary:

The effects on the number of Navy enlistments of recruiters, their distribution, and their quotas are investigated. Results from CY73 and FY75 are compared and improvements to the quota setting process are considered.

This study asks whether Navy recruiting policy can significantly affect the number of enlistments by school-eligible high school graduates (SEHSGs). In particular, do the number of recruiters, their distribution, or their recruiting quotas significantly affect the number of SEHSG enlistments?

Conclusion:

Recruiters have a small effect on the number of enlistments at the margin. Effective quotas inhibit the productivity of recruiters and reduce the number of enlistments or their average quality. This inhibiting effect can be lessened or eliminated by setting different quality requirements for each NRD.

Exhibit 16

Center for Naval Analyses CNR 34, U. S. Marine Corps Enlistment Bonus Program, Palomba, C.A., January 1983.

Service: Marine Corps Time Period: FY80

Sample: FY80 Recruits

Methodology: Time-series Regression Analysis, Logit Analysis, and Cross-classification Tables.

Criteria: Quantity/Quality Recruits

Predictors: Education, Race, Sex, Retention, Success, AFQT, and Bonus program.

Summary:

The study attempted to determine the effect of the EBP on enlistment supply and report measures of cost effectiveness. Additionally, the effect of EBP on recruit quality, affirmative action, and early separation from the Marine Corps was evaluated.

Conclusion:

The mental aptitude and education levels of recruits in the EBP were substantially higher than those of recruits in comparable options. The technical bonus appears to be serving affirmative action objectives with respect to blacks and females but not with respect to Hispanics.

Exhibit 17

Defense Audit Service Report 81-072, Report on the Review of the Bonus Program for the Selected Reserve, Curry, J.H., March 1981.

Service: Army Time Period: JUN-NOV80

Sample: 147 Reserve Units

Methodology: Audit

Criterion: Quality Reserve Personnel

Predictors: Bonus, Education assistance, Unit, and Military Occupational Specialty (MOS).

Summary:

This study reviews and evaluates the efficiency and effectiveness of the procedures and internal controls established to administer the selected reserve bonus program. Emphasis was given to ensuring that the reserve components were following Department of Defense guidelines in awarding the bonuses.

Conclusion:

Results of the review show relatively high percentage rates of deficiencies concerning inaccurate personnel data records, contracts signed with ineligible personnel, and unfulfilled contracts. Although these statistics may be indicative of the trial and error experience associated with new programs, the latter two deficiencies have contributed to the payment of improper or unearned bonuses and should be recovered.

Exhibit 18

Duke University, Armed Services Recruiting Research: Issues, Findings, and Needs, Morey, R.C., McCann, J.M., July 1981.

Service: Navy Time Period: JAN76-DEC78

Sample: 1548 Randomly selected enlistees.

Methodology: Regression Analysis

Criteria: Quantity/Quality of Recruits

Predictors: Unemployment, Number of recruiters, Advertising, Demographics, Seasonality, Special events, Pay level, Quotas, Demand limitations, Inter-service competition, and Delayed Entry Pool (DEP).

Summary:

This paper provides an introduction and review of some of the key issues involved in modeling and estimating the supply of military recruits. Selected econometric models are summarized and compared. Some new insights and directions for further research are presented.

Conclusion:

The study suggests that research be conducted integrating "local leads" into the enlistment equations, investigating the impact of other services advertising and recruiters, and studying closely pay-related issues. The impact of quotas should be looked at and the uncertainty of forecasting models should be quantified. Finally, the use of controlled experiments needs to be undertaken.

Exhibit 19

Duke University, Budget Allocation and Enlistment Prediction Models for the Navy's Recruiting Command: The Proper Balance Between Recruiter and Advertising Efforts, Morey, R.C., May 1979.

Service: Navy Time Period: 1977-1978

Sample: CY77 Recruits

Methodology: Regression Analysis

Criteria: Quantity/Quality of Recruits

Predictors: Time period, District indicator variable, Monthly indicator variable, Year indicator variable, GI Bill expiration indicator variable, Total advertising and promotion expenditure, Number of recruiters, Number of leads, and Total high school graduates.

Summary:

This effort attempts to model, predict and optimize the combined effects of advertising and recruiter efforts. By being better able to simultaneously allocate and tradeoff both types of expenditures, both against themselves as well as geographically, the Recruiting Command can better meet quality and quantity enlistment goals over time. The key product of this effort is a computer program to be run periodically by the Recruiting Command to help execute national and regional budgets.

Conclusion:

In the budget execution mode, the model can optimally allocate advertising dollars and determine locations for recruiter assignments.

Exhibit 20

Donelan, J.O., Investigation of Goaling Models for Navy Recruiting, Masters Thesis, Naval Postgraduate School, Monterey, CA, March 1977.

Service: Navy Time Period: FY75

Sample: FY75 Qualified Military Available (QMA)

Methodology: Regression Analysis

Criteria: Quantity/Quality of Recruits

Predictors: Urban QMA, Rural QMA, Black QMA, Adjusted Unemployment, True unemployment, and Canvasser factor.

Summary:

This study reviews previous works which investigated goaling models for the Navy's recruiting effort. Nine models were examined for their goaling potential, and five were selected for further analysis. In general the variables examined here were the same ones that were used in the Recruiting Command's model.

Conclusion:

The results of the analyses support previous reports that canvassers, unemployment, and the number of qualified military available (QMA) males within a Recruiting District exert a positive influence on accessions, and that the black QMA of a district has a negative coefficient associated with it. Because of the high level of significance of the recruiters, it is recommended that a future study attempt to identify the attributes of an effective recruiter.

Exhibit 21

Duke University TR N-1, The Impacts of Various Types of Advertising Media, Demographics, and Recruiters on Quality Enlistments, Morey, R.C., July 1981.

Service: Navy Time Period: JAN76-DEC78

Sample: CY76, CY77, CY78 Recruits

Methodology: Regression Analysis

Criterion: Quality of Recruits

Predictors: Recruiter characteristics, Advertising data, and Demographic data.

Summary:

This report deals with the efforts performed to obtain a more effective balance between advertising and recruiter expenditures and to determine the proper media mix, and timing of advertising, together with the numbers and locations for recruiters to maximize the efficiency of recruiting expenditures.

The key thrust of this effort has been to explore the differences in results using a data base that includes over 1500 monthly district observations covering the 43 recruiting districts over the period JAN76-DEC78.

Conclusions:

In general a district with a higher percentage of blacks has significantly fewer upper mental category HSG contracts. The relative pay has a very small elasticity on the upper mental category HSG contracts, thereby confirming the hypothesis that quality recruits are less interested in short term compensation considerations but more in the training possibilities and its impact on their long term income. This is also the reason the unemployment rate has less impact on the high quality HSG recruit than on the HSG recruit in general. Recruiters seem to have about the same or somewhat less impact on the quality HSG recruit as they do on the HSG recruit.

Exhibit 22

Elig, T.W., Gade, P.A., and Johnson, R.M., Recruiter and Recruit Demographic Characteristics: A Preliminary Investigation of Recruiter Selection Criteria, Paper prepared at Army Research Institute, 1982.

Service: Army Time Period: FY79

Sample: 552 Male and 60 Female Recruiters

Methodology: Archival Investigation and Analysis of Covariance (ANCOVA)

Criterion: Quality of Recruiters

Predictors: Biographic information, Personality assessment, and Interest inventory.

Summary:

This paper describes a new approach to recruiter selection research. Past research on recruiter selection was conducted assuming an all volunteer recruiting force in which evaluation teams selected the most suitable volunteers for recruiting duty. Most of this research focused on using biographic information, personality assessment, and interest inventory results as predictors of recruiter performance. Generally, this approach has had limited success only. Using an assessment center to select recruiters seems to be the most promising approach to recruiter selection to emerge thus far.

Conclusion:

Recruiter demographic characteristics can be related to recruit characteristics when opportunity bias is removed. With respect to recruiter characteristics, the best Army recruiters appear to be better educated (with post-secondary education), have a higher AFQT, and if male, younger, and if female, older. Thus it appears that demographic data will be useful for selecting recruiters from a pool of nonvolunteers for recruiting duty.

Exhibit 23

General Research Corporation OAD-CR-46, An Analysis of the Gilbert Youth Surveys for Utilization in Recruiting Resource Allocation, Babiskin, R., Grissmer, D., and Sterrett, R., September 1974.

Service: Army Time Period: MAY71-OCT72

Sample: Gilbert Youth Surveys MAY/OCT71 and MAY/OCT72

Methodology: Univariate Frequency Analysis

Criteria: Quantity/Quality of Recruits

Predictors: Propensity, Recruiter contact, State, Education, and Age.

Summary:

The objective of this study is to provide the Army with the results of an investigation into the utilization of the Gilbert Youth Surveys in the allocation of recruiting resources in a volunteer service environment.

Conclusion:

The evidence suggests that the Gilbert Youth sample is not adequate for a regional recruiter resource allocation model, but might be quite representative for other sub-categories. GRC recommends that the Gilbert Youth Surveys sampling plan be reformulated to provide more precise regional estimators.

Exhibit 24

General Research Corporation OAD-CR-37, An Evaluation of Army Manpower Accession Programs, Grissmer, D.W, and others, April 1974.

Service: Army Time Period: JUN72-AUG73

Sample: JUN72-AUG73 AFEES Survey Data

Methodology: Regression Analysis

Criteria: Quantity/Quality of Recruits

Predictors: Mental category, Pay, Recruiting, Local options, Combat arms options, Non-combat arms options, Print media, TV, and Unemployment.

Summary:

This report covers analyses performed by GRC to help the Army meet its manpower requirements in light of increased competition with other organizations. The project covers cost effectiveness analysis of Army incentive programs, analysis of volunteer quality, a monitoring and projection system for enlistments, analysis of unemployment effects on volunteer enlistments, and analysis of re-enlistments.

Conclusion:

The problem of setting enlistee standards of quality involves being able to predict what characteristics an enlistee should have in order to be a good soldier. Findings state that educational level is a good predictor of staying and that unemployment rates have a greater effect on enlistments than previously thought.

Exhibit 25

General Research Corporation CR 224, The Qualified Military Available Projection System, Huck, D.F., Crews, A., and Sica, G.P., September 1978.

Service: All Services Time Period: 1978

Sample: 1970 State Public Use Sample (PUS)

Methodology: Linear Programming and File Development

Criterion: Quality QMA

Predictors: Age, Sex, Race, Geographic area, Educational level, Current education status, Mental category, and Physical qualification.

Summary:

The most productive placement of recruiters for each service is somewhat dependent upon the defined location of each marketplace. The probability of enlisting a desirable recruit is increased with identification of the Qualified Military Available (QMA) population within that marketplace. This study details a General Research Corporation system defining the number, quality, and location of QMA individuals. By using the most recent and reliable data available, GRC has created a manpower data base capable of being "aged" and qualified to render both current and projected descriptions of MA and QMA individuals. Population counts by state, sex, and race for ages 0-24 extracted from 1970 state PUS is used as the data base.

Conclusion:

Use of QMA information is essential as a starting point in describing the recruiting marketplace. The GRC method of defining the QMA is flexible, easily adaptable to policy changes, and is updated information. The major drawback is that the system cannot measure each individual's propensity to enlist.

Exhibit 26

George Washington University T-277, Selection, Deployment, and Evaluation of Marine Recruiters, Bennett, J.T. and Haber, S.E., June 1973.

Service: Marine Corps Time Period: 1973

Sample: 259 Recruiters

Methodology: Regression Analysis

Criterion: Quality of Recruiters

Predictors: GCT, Age, Race, Education, Volunteer, Career planning, DI, Dependents, Hardship, Home state, Type area, Reassigned, Hours worked, Time out of office, Time assigned, and Class rank.

Summary:

This study investigates the factors which influence the productivity of individual Marine recruiters. The relative importance of (1) characteristics of individuals, (2) geographical assignment, and (3) the deployment patterns of individuals is assessed based on a sample of 259 recruiters at 29 Recruiting Stations.

Conclusion:

The most important determinant of performance is the propensity to enlist in the recruiting market to which the recruiter is assigned. In areas with low enlistment rates, recruiters who have served tours as career planners are more productive than others. Recruiters who work in areas near their home are likely to have an advantage as is a recruiter who works in an urban/suburban environment instead of in a rural area.

Exhibit 27

Hamblin, T.R., Optimal Allocation of Coast Guard District Recruiting Funds, Masters Thesis, Naval Postgraduate School, Monterey, CA, December 1974.

Service: Coast Guard Time Period: 1974

Sample: 459 September 74 Recruits

Methodology: Linear Analysis

Criterion: Quantity of Recruits

Predictors: Demographics, Advertising, Recruiter travel, and Give-away items.

Summary:

This thesis reviews the allocation of Coast Guard district recruiting funds for five Coast Guard districts. An attempt is made to determine the marginal productivity of input factors, advertising, recruiting travel, and give-away items.

Financial data for the five districts reviewed is compared with the results of a questionnaire completed by 459 recruits enlisted from the districts studied.

Conclusion:

None of the military procurement officers in the districts studied were aware of the marginal productivity of the factors reviewed. A reallocation of recruiting resources in the eleventh, twelfth, and thirteenth districts would have provided the same number of recruits for a smaller expenditure, or a larger number of recruits for the same expenditure. This reallocation would require a greater use of advertising with a corresponding decrease in recruiters' travel.

Exhibit 28

Human Resources Research Organization IR-PRD 83-16, A Review of Military Enlistment Supply Models: In Search of Further Improvements, Perelman, L.S., July 1983.

Service: All Services Time Period: 1982/1983

Sample: Simulation

Methodology: Literature Search and Regression Analysis

Criteria: Quantity/Quality of Recruits

Predictors: Perceptions, Propensity, Draft, Number of recruiters, Advertising, Pay, DEP, Competition, Unemployment, Age, Sex, Race/ethnicity, Marital status, Education, Occupation, AFQT scores, and Parents' (usually mother's) education.

Summary:

This review attempts to develop and refine a list of recruiting system and environmental factors which affect recruit production and documents major research studies that have attempted to model military enlistment supply.

Conclusion:

A decade's worth of major work conducted to model military enlistment supply has shown a dramatic increase in both methodological complexity and in understanding the interactive nature of the economic/demographic and military recruiting system environments. Early attempts at such modeling were commendable in that they recognized the possibility of certain factors affecting recruit supply. More recent models have taken care to account for lags and have made more of an effort to employ microdata where possible.

Exhibit 29

Miller, J.J. and Huck, D.F., The Application of Geodemographic Market Segmentation Techniques to Military Recruiting, Paper prepared at DMDC, March 1983.

Service: All Services Time Period: FY81

Sample: 40,378 FY81 Male Enlistees

Methodology: Cluster Analysis

Criterion: Quantity of Recruits

Predictors: Age, Ethnicity, Housing, Income, Education, and Occupation.

Summary:

This project was undertaken to explore the issue of whether a market segmentation system such as ACORN, with apparently useful applications in the commercial sector, could assist in the military recruiting effort. To obtain a rough guage of its potential for recruiting, a small pilot test using census data was set up to answer three questions. First, could productive markets be identified? Second, could high quality markets be identified, and third, could performance of management units be compared?

Conclusion:

While the results are too tentative at this point to recommend that recruiting managers take action to change quotas or resources, such comparisons may prompt management to investigate the reasons for these differences. More work in this aspect of geodemographic recruiting applications would appear warranted.

Exhibit 30

Naval Personnel Research and Development Laboratory WTR 73-18, A Bivariate Normal Version of the Cost of Attaining Personnel Requirements Model, Sands, W.A., April 1973.

Service: Navy　　　　　　Time Period: 1973

Sample: Simulation

Methodology: Linear Programming

Criteria: Quantity/Quality of Recruits

Predictors: Quota, Success, Selection, Validity, Recruiting cost, Training cost, and Processing cost.

Summary:

The purpose of this report is to introduce a bivariate normal version of the Cost of Attaining Personnel Requirements (CAPER) model. This CAPER II model drastically reduces the work involved in input data preparation.

Conclusion:

Both versions of the CAPER model appear to be promising personnel management tools. The models enable the personnel manager to adapt his selection strategy to changes in quotas and/or alterations in the recruiting environment.

Exhibit 31

Naval Personnel and Training Research Laboratory SRM 73-3, Preliminary Validation of an Interest Inventory for Selection of Navy Recruiters, Abrahams, N.M., Neumann, I., and Rimland, B., April 1973.

Service: Navy Time Period: Fall 1972

Sample: 360 Recruiters

Methodology: Cross-validation

Criterion: Quality of Recruiters

Predictors: Strong Vocational Interest Blank (SVIB)

Summary:

SVIBs were collected from samples representing the most and least effective recruiters at 36 of the 42 main recruiting stations. The responses of the two groups were contrasted for one-half of the sample, and used to establish scoring weights. The valid responses were assembled into the Recruiter Interest Scale-1 (RIS-1). The remaining recruiters, not used in scale development, were scored on the RIS-1 to determine how well the scale discriminates between the most and least effective recruiters.

Conclusion:

An empirical SVIB scale, RIS-1, was found to discriminate quite well between the most and least effective recruiters. When scores of the "holdout group" were ordered and divided into fourths, the top quarter contained about three times as many effective recruiters as did the bottom fourth. The RIS-1 scale should be used to identify potentially effective recruiters. A shipmate nomination system to increase the number of applicants for recruiting duty should be instituted for future recruiter selections.

Exhibit 32

Naval Postgraduate School NPS 54-78-009, Advertising Budgets, Advertising Effectiveness and the Navy's Recruiting Advertising Program, Arima, J.K., December 1978.

Service: Navy Time Period: OCT76-SEP78

Sample: CY76/CY77 Recruits

Methodology: Multiple Regression

Criteria: Quantity/Quality of Recruits

Predictors: Advertising data, Recruiting data, and Situational (Demographic) data.

Summary:

Enlistment contracts must be marketed and sold in large numbers to staff the military forces adequately in the total number of personnel and in the requisite quality. The competition to attract quality youth entering the labor market involves not only the entire civil sector, but there is also keen competition among the services as well. The purpose of this study was to examine the Navy's advertising in this competitive market. The objectives of the study were to become familiar with the structure and dynamics of Navy advertising and to examine available data for possible trends between advertising and response measures in the target audience.

Conclusion:

The study determines that media mixes and the allocation of advertising resources among national media, local advertising, and recruiting aids should be examined to determine the optimal distribution. The effects of goals, the DEP status, and possibly goal attainment in the immediate past should be identified and combined into a single measure.

Exhibit 33

Naval War College CS-0965, Influencing Marine Corps Recruit Quality Through Recruiter Incentives, Blanton, H.L., September 1975.

Service: Marine Corps Time Period: 1969-1974

Sample: FY69, FY72, FY74 Marine Corps

Methodology: Statistical Analysis

Criterion: Quality of Recruits

Predictors: Length of Service, Education, and Mental Group.

Summary:

This study is directed toward the stimulation and motivation of recruiters to enlist higher quality prospects through an incentive system. Major policy decisions affecting recruiting are reviewed and trends in the composition of the Marine Corps are outlined.

Conclusion:

Level of education has shown to be a reasonably good predictor of trainability and retainability. Implementation of a bonus system is recommended since it provides motivation in the form of monetary rewards for recruiters who seek out and enlist quality applicants.

Exhibit 34

Navy Personnel Research and Development Center TR 79-17, An Inventory Battery to Predict Navy and Marine Corps Recruiter Performance: Development and Validation, Borman, W.C., Toquam, J.L., and Rosse, R.L., May 1979.

Service: Navy/Marine Corps Time Period: MAY76-AUG77

Sample: 329 Navy and 118 Marine Corps Recruiters

Methodology: Factor Analysis

Criterion: Quality of Recruiters

Predictors: Biographics, Personality, and Interest Inventory.

Summary:

The objective of this study was to develop paper-and-pencil predictors of Navy and Marine recruiter performance and evaluate their validity. Several measures of personality, vocational interests, and background were selected and administered to a geographically representative sample totaling 329 Navy and 118 Marine Corps recruiters. Scores on the predictor battery's items and scales were correlated with performance scores developed from supervisory, peer, and self ratings and from production data.

Conclusion:

The predictor battery developed in this study shows promise for aiding Navy and Marine Corps decision makers in selecting recruiters for the two services.

Exhibit 35

Navy Personnel Research and Development Center SR 76-9, A Systems Analysis of Navy Recruiting, Arima, J.K., April 1976.

Service: Navy Time Period: JAN74-DEC74

Sample: Navy Recruiting Command

Methodology: Systems Analysis

Criteria: Quantity/Quality of Recruits

Predictors: Recruiter characteristics and Enlistment standards.

Summary:

The research objective was to provide an integrated, comprehensive description by conducting a systems analysis of Navy recruiting. The objective of the systems analysis was to investigate and document Navy recruiting as a process that interacts with the larger military community of which it is a part and the civilian community which provides the raw materials it processes into accessions for the Navy.

Conclusion:

This study provides a static description of NAVCRUITCOM as it was hierarchically and geographically organized at that time. It then determines that individual citizens can join the Navy for the first time from 17 to 50 years of age and that progression through the educational system of the United States determines the programs for which a person is eligible.

Exhibit 36

Navy Personnel Research and Development Center TR 78-21, Determinants and a Measure of Navy Recruiter Effectiveness, Arima, J.K., June 1978.

Service: Navy Time Period: JUN74-OCT74

Sample: 268 California Recruiters

Methodology: Regression Analysis and Analysis of Variance

Criterion: Quality of Recruiters

Predictors: Recruiter characteristics and Area potential (Demographics).

Summary:

This research sought to develop a practical means of objectively measuring recruiter productivity. This requires determining the degree to which individual recruiter characteristics and the operating environment contribute to variations in recruiter productivity. To do this, an equation was developed to predict productivity variation due to environmental characteristics, specifically, management policy and the recruiting potential of a given geographical area.

Conclusion:

Total recruiter production is determined approximately equally by the personal characteristics and abilities of the recruiters and by the potential of the recruiting station territory and the NRD in which it is located. Accordingly, individual recruiter effectiveness can be conceived as the ratio of actual productivity to expected productivity.

Exhibit 37

Navy Personnel Research and Development Center TR 81-20, *Development and Validation of a Recruiter Selection Battery*, Borman, W.C., Rosse, R.L., and Toquam, J.L., September 1981.

Service: Navy Time Period: OCT77-NOV78

Sample: 194 Recruiters

Methodology: Factor Analysis

Criterion: Quality of Recruiters

Predictors: Personality assessment and Vocational interest.

Summary:

This report describes the development and validation of a battery of primarily pencil and paper instruments to identify those individuals most likely to become successful recruiters. This battery was then administered to 194 Navy recruiters in seven different locations. Two primary measures of success were used; production data compiled over a six month period, and ratings gathered from supervisors and peers on four aspects of performance. Analyses were conducted to evaluate both the precision with which the new items measured the constructs and the extent to which those items enhanced test battery validity.

Conclusion:

Composites of new items successfully measured their target constructs and enhanced the validity of these constructs. Scales derived from the constructs validly predicted the two major indices of recruiter effectiveness.

Exhibit 38

Navy Personnel Research and Development Center TR 76-31, Development of Behaviorally Based Rating Scales for Evaluating the Performance of U. S. Navy Recruiters, Borman, W.C., Hough, L.M., and Dunnette, M.D., February 1976.

Service: Navy Time Period: JUN74-AUG75

Sample: 24 Recruiters

Methodology: Regression Analysis and Multi-Dimensional Scaling (MDS)

Criterion: Quality of Recruiters

Predictors: Prospect contacts, Rapport with prospects, Prospect information, Salesmanship skills, Community relations, Dissemination of Navy information, Recruiter and command support, and Administrative skills.

Summary:

Behavior scaling methodology was used to gather from field recruiters, their superiors, and from recruits over 800 critical incidents describing different facets of effective and ineffective recruiter performance. Dimensions of performance were formed according to the content of these incidents. The Behavior Summary Scales were field tested by using them to obtain self, peer, and supervisor job performance ratings for 24 recruiters from eight stations.

Conclusion:

Future use of the Navy Recruiter Behavior Summary Performance Scales should be restricted to self and peer ratings in order to assure highest reliability and the most valid performance appraisals.

Exhibit 39

Navy Personnel Research and Development Center SR 77-7, Generating Navy Recruiting Goal Matrices: Present and Long Term Solutions, Rafacz, B.A., March 1977.

Service: Navy Time Period: APR76

Sample: Navy Recruiting Area Eight

Methodology: Linear Programming

Criteria: Quantity/Quality of Recruits

Predictors: Area Quotas, District Quotas, and QMA.

Summary: The objectives of this effort were to develop a procedure for coordinating the goal generation efforts of Navy Recruiting Command (NRC) and Area manpower planners, and to design an automated procedure for communicating goals throughout the command.

Using the computer system at the Naval Postgraduate School (NPS), the Area software program was developed. Rationale and associated algorithms for generated goal matrices were incorporated. Both interim and long-term procedures were then developed to solve the Navy recruiting goals and transmission problem.

Conclusion:

The computer generation of goal matrices provides NRC Area manpower planners the capability of generating goal matrices in much less time than the manual procedure. There seems to be sufficient computer equipment available so that any other Area manpower planner could generate the recruiting goals for his subordinate districts with the procedure developed for Area Eight.

Exhibit 40

Navy Personnel Research and Development Center SR 82-22, Identification of Strategies for Penetrating the 19-to-23 Year Old Recruiting Market, Romanczuk, A.P., and others, April 1982.

Service: Navy Time Period: FEB80-MAY80

Sample: Recruiting personnel and target population from NRDs San Francisco and Seattle

Methodology: Interview Analysis

Criterion: Quality of Recruits

Predictors: Demographics, Propensity, and Individual characteristics.

Summary:

Nine marketing strategies were evaluated for their potential effectiveness in attracting and enlisting a target population of 19-23 year old, unmarried, NPS, HSDG males. The evaluation was based on information obtained from in-depth interviews with recruiters and members of the target population.

Conclusion:

Two marketing strategies have the greatest potential for attracting and recruiting target group members. They are peer networking and direct mail marketing using specialized mailing lists.

Exhibit 41

Navy Personnel Research and Development Center TR 82-62, Intentions of Men 23 to 29 Years Old to Join the Military: Results of a National Survey, Borack, J.I., September 1982.

Service: All Services Time Period: APR80-APR82

Sample: 3411 NPS and 592 prior service males

Methodology: Telephone Survey

Criterion: Quantity of Recruits

Predictors: Propensity, Bonus, Lateral entry pay, Educational benefits, Training/job guarantees, Assignment guarantees, Contract length, and Demographics.

Summary:

The primary objective of this survey was to provide reasonable estimates of the overall number and composition of men 23 to 29 years old interested in joining the military under current conditions and under various monetary and non-monetary incentives. A national telephone survey using a variation of random digit dialing was used to locate such males not currently in the military.

Conclusion:

Although enlistment intentions tend to decrease with age, the decline is not sufficient to warrant dismissal of the 23 to 29 year old population as a source of supply during the 1980s and 1990s.

Exhibit 42

Navy Personnel Research and Development Center TR 78-34, Intentions of Women (18-25 Years Old) to Join the Military: Results of a National Survey, Borack, J.I., September 1978.

Service: Navy Time Period: 1978

Sample: 2376 Randomly selected 18-25 Year olds

Methodology: Telephone Survey

Criterion: Quantity of Interested Females

Predictors: Region of country, Job classification, Age, Race, and Education.

Summary:

Study objectives were to provide reasonable estimates of the overall numbers of young women and men interested in joining the military under current and alternative conditions, and to determine the demographic and attitudinal characteristics of this interested population. This was accomplished through a random telephone survey and weighting the responses for projection to the national population of 18-25 year olds.

Conclusion:

There is a sizable potential supply of women interested in military service under current and alternative conditions. The composition of the pool of women differs from men in terms of skills and interests. The Air Force and Navy elicited the most interest among the respondents.

Exhibit 43

Navy Personnel Research and Development Center SR 83-34, Navy Personnel Accessioning System (NPAS): Studies I, II, and III, Baker, H.G., May 1983.

Service: Navy Time Period: SEP78-SEP81

Sample: Simulation

Methodology: Computer Match

Criterion: Maximum Utilization

Predictors: Personal abilities, preferences, interests, and goals; and Job priorities, objectives, requirements, and training.

Summary:

These reports document the conceptualization and design of a proposed prototype computerized Navy Personnel Accessioning System (NPAS) suitable for use in recruiting stations. They provide a summary of research and development efforts and products resulting from the NPAS project and development of a micro-computer based demonstration system.

Conclusion:

NPAS provides the conceptual base for making the accessioning process more efficient and effective using the latest developments in personnel research and computer technology. The system further enhances public image, increases enlistments and saves recruiters' time.

Exhibit 44

Navy Personnel Research and Development Center TR 78-16, Projections of the U. S. Population of 18 Year Old Males in the Post 1993 Period, Borack, J., and Govindan, M., March 1978.

Service: Navy Time Period: 1970-1975

Sample: 1970-1975 Males under 1 year and Females Age 15-44

Methodology: Asymptotic Exponential Regression

Criterion: Quantity of 18 year old Males

Predictors: Number of males less than 1 year old and Number of 15-44 year old females.

Summary:

This report discusses a forecasting methodology based upon asymptotic exponential regression that may be utilized to obtain projections of the 18 year old male population. Projections obtained by this methodology are compared to Bureau of the Census population projections and actual post-period estimates.

Conclusion:

Projections of the short range asymptotic fertility trend model indicate that the size of the U.S. population of 18 year old males will remain relatively low throughout the period 1994-1998.

Exhibit 45

Office of Naval Research NR 170-906, An Anthropologist Examines the Navy's Recruiting Process, Rojas, L., December 1981.

Service: Navy Time Period: 1981

Sample: Random recruiters and recruits in San Antonio, Miami, Chicago, New York, and Albuquerque

Methodology: Anthropological Study

Criterion: Quantity of Hispanic Recruits

Predictors: Image, Exposure, Recruiter, Family, ASVAB, and Classification.

Summary:

This report is a description of the Navy recruitment process, in particular the recruitment of Hispanics. Observations and interviews with both Navy personnel and recruits at several recruiting centers were used as the basis of this study.

Conclusion:

Only one out of five Hispanic potential recruits is enlisted in the Navy. The major barrier to enlistment is inadequate academic preparation. That the intense family attachments of Hispanics is incompatible with a naval career is a lesser finding of the report.

Exhibit 46

Office of Naval Research MC 1-2, A Pilot Study to Ascertain the Attitudes of Navy Recruiters and Hispanic Youth Toward the Recruitment of Hispanics in the U.S. Navy, Recio, M., October 1980.

Service: Navy Time Period: 1980

Sample: 21 Recruiters and 30 Hispanic Youth in Texas, Pennsylvania, and Puerto Rico

Methodology: Questionaire/Interview

Criterion: Quantity of Hispanic Recruits

Predictors: Advertising, Recruiter characteristics, and Hispanic youth characteristics.

Summary:

Navy recruiters and Hispanic youth who had had contact with a Navy recruiter were administered a questionnaire. Each group was asked about their perceptions of whether a recruiter who works in the Hispanic community should be Hispanic and/or bilingual, the best way to recruit Hispanics, the effectiveness of Navy advertising to attract Hispanics, and difficulties Hispanics face with Navy entrance requirements. Hispanic youth were also asked to comment on the recruiting practices they encountered.

Conclusion:

Hispanic youth prefer to have a bilingual or Hispanic recruiter while recruiters favor a bilingual recruiter over an Hispanic. Recruiters are not pleased with current Navy advertisement and Hispanic youth recommend the use of English and Spanish advertising geared to the local community. Education and language were listed by both groups as reasons why Hispanics have difficulty meeting Navy enlistment requirements. In general, the youth perceived contact with the Navy recruiter positively.

Exhibit 47

Office of Naval Research NR 170-032, Department of Defense and Navy Personnel Supply Models: Report of a Workshop, Cirie, J.A., Miller, J.J., and Sinaiko, H.W., May 1981.

Service: Navy Time Period: JAN81

Sample: Simulation

Methodology: Critical Review and Testing

Criteria: Quantity/Quality of QMA

Predictors: CNA Model, Duke Model, and Rand Model.

Summary:

This paper discusses the results of a workshop convened to evaluate several extant personnel supply models. Strengths and weaknesses of the models were elaborated and suggestions are made for improving their usefulness to manpower policy makers.

Conclusion:

Each of the models examined has weaknesses and should be used with caution by policy makers. As better data are accumulated and common definitions and scales applied, these models should prove useful in forecasting the effects of alternative policies. The Duke model is the most complete and has been adopted by the Navy Recruiting Command for allocating recruiter and advertising resources.

Exhibit 48

Office of Naval Research TR 76-1, Navy Recruitment Potential in Junior Colleges, Fisher, Jr., A.H., Pappas, L.D., and Stephenson, S., July 1975.

Service: Navy Time Period: 1975

Sample: 40 Students from 20 Junior Colleges

Methodology: Questionnaire/Statistical Analysis

Criterion: Quantity of Recruits

Predictors: Demographics, Aspirations, Navy programs, Recruiter, and Advertising.

Summary:

The major objective of this survey research project was to estimate the Navy recruitment potential of male junior college students. The results of a national survey of 807 students suggest that a promising recruitment market exists for officer and enlisted recruiting, including both the active force and the Reserve. The 1974 Community and Junior College Directory was used as the data base.

Conclusion:

The following rates of intention to join were found: (1) active duty enlisted force, 10%; (2) active duty officer force, 13%; and (3) Reserve/National Guard, 11%. These results are generally equivalent to, or higher than, rates obtained from civilian youth in previous attitude surveys. The rate for joining the enlisted force is particularly favorable for youth beyond high school.

Exhibit 49

Office of Naval Research NR 170-870, The Effects of Local Economic Conditions on Navy Enlistments, Cowin, M., and others, March 1980.

Service: Navy Time Period: JUL75-DEC76

Sample: SMSAs JUL75-DEC76

Methodology: Cross Sectional Multiple Regression

Criteria: Quantity/Quality of Recruits

Predictors: Employment, Wages, Unemployment and rates of change, Recruiter density, SMSA military population, Minority population, and regional peculiarities.

Summary:

This study uses the Standard Metropolitan Statistical Area (SMSA) as the basic economic unit and constructed models for enlistment rate, recruiter productivity, and enlistee quality mix. Local economic variables and demographics were used in the construction of the models.

Conclusion:

Results show that recruiter density, local unemployment rate, and the fraction non-white in the eligible population were consistently influential and significant as determinants of male enlistment behavior. In general, adding recruiters would have raised enlistment rates while concentrating recruiting resources in areas of high unemployment would have improved recruiter productivity.

Exhibit 50

Office of Naval Research HumRRO TR 74-6, The Structure of Enlistment Incentives, Fisher, A.H., Orend, R.J., and Rigg, L.S., March 1974.

Service: All Services   Time Period: 1973

Sample: 1972 Gilbert Youth Survey Respondents

Methodology: Factor Analysis

Criteria: Quantity/Quality of Recruits

Predictors: Self-determination, Vocational training, General education, and Enlistment bonus.

Summary:

Study performs a correlational analysis of the structure of enlistment incentives as to the extent and direction of relationships between responses to items representing various incentives for enlistment. Factor analysis was used to assess the extent to which common incentive factors exist.

Conclusion:

Youth who endorsed one incentive generally tended to endorse other incentives. The factor analysis generated four interpretable factors; self-determination, vocational training, enlistment bonuses, and general education.

Exhibit 51

Rand N-1297-MRAL, Forecasting Enlisted Supply: Projections for 1979-1990, Fernandez, R.L., September 1979.

Service: All Services Time Period: 1978

Sample: FY78 Recruits

Methodology: Regression Analysis

Criteria: Quantity/Quality of Recruits

Predictors: Military pay, Civilian pay, Recruiters, and Youth unemployment.

Summary:

This study examines those groups of recruits that the services are most interested in attracting and for which accession levels have been limited by the available supply rather than by service policies: i.e., nonprior service (NPS) male high school diploma graduates (HSDG) in the three highest mental categories. Category IV and non-high school graduate volunteers will probably continue to be available, as they have been in the past, in greater numbers than the services wish to accept. Projections of supply from 1979-1990 are generated.

Conclusion:

Projections developed here should prove fairly accurate. Enlistments of high quality males will decline steadily through the late 1980s unless some major and as yet unforeseen event occurs that significantly raises the basic propensity of young men to enter the military such as a return of the youth unemployment rate to a level near its post-draft high.

Exhibit 52

Rand N-1954-MRAL, Forecasting Enlistment Actions From Intention Information: Validity and Improvement, Orvis, B.R., December 1982.

Service: All Services Time Period: 1976-1981

Sample: YATS APR76-OCT80 and 1981 Applicant Survey

Methodology: Statistical Analysis

Criterion: Quantity of QMA

Predictors: Propensity and Enlistment

Summary:

Youth surveys presume a direct relationship between the strength of a person's intention to serve and the likelihood that he will actually enlist. The purpose of this project is to determine the extent of this relationship by linking survey enlistment intention responses with the respondents' actual enlistment decisions.

Conclusion:

The results suggest that the enlistment intention measures in the Applicant and YATS surveys do a good job of discriminating the respondents' true probabilities of enlistment.

Exhibit 53

Rand N-1510-MRAL, Issues in the Use of Postservice Educational Benefits As Enlistment Incentives, Fernandez, R.L., July 1980.

Service: Army/Navy/ Marine Corps

Time Period: 1979

Sample: FY78/FY79 VEAP Participants

Methodology: Linear Programming (Present Value)

Criterion: Quality of Recruits

Predictors: Schooling period, GI Bill benefit level, Discount rate, and Inflation.

Summary:

This study tests the attractiveness of enhancements to the VEAP educational benefit fund. The enhancements, called VEAP "kickers", are limited to HSDG enlistees in mental categories I through IIIa who enlist in combat arms or seagoing engineering ratings.

Conclusion:

The research concludes that the VEAP "kicker" should be eliminated in favor of cash bonuses and the attrition/retention behavior of recipients should be carefully monitored. If the "kickers" are retained they should be offered to all HSDG enlistees. Finally, interest should be paid on individual and government contributions to improve the appeal of the program.

Exhibit 54

Rand N-1946-MRAL, Potential for Military Recruiting From Two-Year Colleges and Postsecondary Vocational Schools, Shavelson, R.J., Haggstrom, G.W., and Winkler, J.D., January 1981.

Service: All Services Time Period: 1981

Sample: 1981 Accessions

Methodology: Statistical Analysis

Criteria: Quantity/Quality of Recruits

Predictors: Accession standards, Mental ability, Education, Demographics, and Aspirations.

Summary:

Purpose of the study was to examine the postsecondary education market to ascertain whether (a) there are sufficient numbers of potential recruits, (b) students meet enlistment standards, (c) the market can be penetrated, (d) previous recruits have proven valuable to the military, and (e) additional research is needed.

Conclusion:

Study concludes that sufficient numbers of potential quality recruits exist in the market and the market is penetrable. However, data on recruits from this source is not available which suggests further research is needed in this area.

Exhibit 55

Rand R-2671-MRAL, The Multiple Option Recruiting Experiment, Haggstrom, G.W., and others, November 1981.

Service: Army/Navy/ Marine Corps

Time Period: 1981

Sample: CY81 Recruits

Methodology: Regression Analysis

Criterion: Quality of Recruits

Predictors: Two year enlistment, VEAP "kicker", Super VEAP "kicker", and IRR option.

Summary:

This report analyzes the results of the first year of the Multiple Option Recruiting Experiment (MORE) conducted to test the attractiveness of new enlistment incentives in the Army, Navy, and Marine Corps. Incentives tested were a two-year term of enlistment, expanded postservice educational benefits, and an option permitting recruits to choose reserve duty in lieu of active military service after completing initial training.

The experiment was conducted by offering different combinations of the options in different areas of the country. For the most part, the options were restricted to "high-quality" enlistees: high school graduates who scored at or above the 50th percentile on the Armed Forces Qualification Test (AFQT). The options were also primarily restricted to enlistees in hard-to-fill occupational specialties.

Conclusion:

The results were disappointing; none of the options yielded a sizable enlistment response. The only option under test that seemed to offer some promise as a recruiting incentive for combat arms enlistees was the IRR option. In conclusion, MORE did not reveal promising solutions to the military's recruitment problems, but it has forestalled the implementation of some options that would exacerbate the problems.

Exhibit 56

Rhodes Associates N62271-7206-5700, Evaluation of Navy Advertising Effectiveness, January 1978.

Service: Navy	Time Period: Spring/Fall 1976

Sample: Market Facts Survey (8500 16-21 year old males with no current or previous military service)

Methodology: Regression Analysis (Casual Chain Models)

Criteria: Quantity/Quality of Recruits

Predictors: Attitude, Awareness, Unsolicited advertising, and Interest.

Summary:

This report summarizes an analysis of the effectiveness of Naval advertising. In order to estimate the effect of Navy advertising on enlistments, a simple model was formulated relating advertising and such important factors as Naval awareness and attitude toward service in the Navy to the individual's propensity to enlist. The model was estimated using data obtained from the Market Facts Survey, the Navy Recruiting Command and MARDAC.

Conclusion:

Major findings are that unsolicited advertising or direct mail advertising was found to have a very strong effect on interest in the Navy. Additionally, local advertising expenditures were found to have a small direct effect on self-initiated recruiter visits. Finally, the qualitative effect of advertising on interest levels of high-quality or academically proficient QMCs appears to be very similar to its effect on the general population of QMCs.

Exhibit 57

Sullivan, R.J., Developing a Measure of Marine Corps Recruiter Effectiveness, Masters Thesis, Naval Postgraduate School, Monterey, CA, June 1976.

Service: Marine Corps Time Period: FY75

Sample: FY75 California Recruits

Methodology: Multiple Stepwise Regression

Criterion: Quality of Recruiters

Predictors: Male work experience, Enrollment, Male HSG, Male vocational education, Minority male vocational education, Average daily attendance, Total federal income, Education expenditures, Pupil transport expenditures, Average teacher's salary, Income, and percentage of income from local sources.

Summary:

This study analyzed the FY75 Marine Corps enlistment productivity and recruiting effort in California. Twelve variables describing the public high schools were used to predict enlistment productivity and recruiting effort.

Conclusion:

It was determined that productivity could be predicted on the basis of recruiting effort alone. Recruiting effort was found to be applied on the basis of male minority students enrolled in vocational education programs and in school districts that had a high percentage of their income from local sources.

Exhibit 58

System Development Corporation TM-5652/000/00, USAREC Recruitment Market Analysis System (REMAS), Cooley, V., and others, April 1976.

Service: Army Time Period: 1975

Sample: 700 17-21 Year-old NPS Males

Methodology: Analysis of Variance and Chi Square

Criteria: Quantity/Quality of Recruits

Predictors: Age, High school grades, Neighborhood, Combat arms, Preferred service, Propensity, and Army fit.

Summary:

This report analyzes effectiveness of Army recruitment advertising. It also examines factors influencing enlistment into the Army. Additionally, attitudes and opinions of potential male recruits are surveyed and analyzed.

Conclusions:

The study found that Army advertising has had a greater impact than has advertising for any other service. Messages with the greatest impact are in the categories of recruiting slogans, job opportunities, educational opportunities, and skills training. Direct mail is an effective advertising medium. Finally, Army advertising is perceived as being accurate but incomplete.

Exhibit 59

USAREC Research Memo 81-1, Age Group 22 and Over - A Good Source of High Mental Ability Recruits, Coleman, F.D., and Toomepuu, J., June 1981.

Service: Army Time Period: FY81

Sample: FY81 NPS Accessions

Methodology: Statistical Analysis

Criterion: Quality of Recruits

Predictors: Age, Mental category, Education, Unemployment, Population, and Accessions.

Summary:

This study presents FY81 soldier accession by age group, AFQT category, sex, and education and projects increases in accession of high aptitude soldiers that would result from increasing the proportion of the over 21 year old group in total accessions. A discussion of the effects of unemployment rates on recruiting of the older group is included.

Conclusion:

The paper concludes from the presented data and findings that recruitment of a larger portion of people who are over 21 will result in a substantial increase in soldiers of above average mental aptitude.

Exhibit 60

Wharton ARC, The Navy Enlistment Field Marketing Experiment Volume 3: An Empirical Investigation of Navy Recruiter Productivity, Carroll, V.P., Lee, H.L., and Wei, M.C., October 1982.

Service: Navy Time Period: MAY77-DEC78

Sample: 345 Recruiters

Methodology: Analysis of Variance

Criterion: Quality of Recruiters

Predictors: Recruiter characteristics, Demographics, and Goals.

Summary:

This research was designed to measure and quantify the effectiveness of Navy recruiting resources. A discussion of the problems and issues of sales force productivity measurement is presented along with the data on which the investigation is based.

Conclusion:

The analysis described in this report led to a recognition that recruiter experience levels were important determinants of productivity. Significant opportunities for further research in the area of recruiter or sales force productivity exists.

Exhibit 61

Wharton ARC, The Navy Enlistment Field Marketing Experiment Volume 1: Executive Overview and Summary, Carroll, V.P., and Rao, A.G., December 1981.

Service: Navy Time Period: JUN79-JUN80

Sample: 8000 17-21 year old males and 18-24 year old females

Methodology: Analysis of Variance, Ratio Analysis, Time Series Analysis, and Cross-sectional Analysis.

Criterion: Quantity of QMA

Predictors: Demographics, Activities of respondents, Life goals, Propensity, Perceptions, and Sources of military information.

Summary:

The two objectives for this research program are to estimate a marketing effort response curve to overall change in (a) the Navy advertising budget level, (b) the size of the Navy recruiting force, and (c) a combined change in both policy variables and to create a research design and to conduct such supplemental tracking, data collection, and analyses as to reasonably maximize the information about other recruiting policies and practices that effect recruiting success.

Conclusion:

Recruiter strength, advertising expenditures, other factors endogenous to NAVCRUITCOM, and broader socio-economic factors exogenous to the Navy were all observed to have significant effects on the number of enlistment contracts obtained.

Exhibit 62

The Wharton School TR 2, Minority Recruiting in the Navy and Marine Corps, Northrup, H.R., and Jenkins, F.A., September 1974.

Service: Navy/Marine Corps Time Period: 1962-1973

Sample: Minority enlisted personnel 1962-1973

Methodology: Systems Analysis

Criteria: Quantity/Quality of Minority Recruits

Predictors: Results of literature search, Briefings, and Personal interviews.

Summary:

This report analyzes the minority recruiting policies, procedures, and objectives of the Navy and Marine Corps. It examines the nature of the problem and notes that it is both quantitative and qualitative for the Navy and mainly qualitative for the Marine Corps. Recruiting concepts and practices are examined in detail, followed by an analysis of labor market factors affecting minority recruiting.

Conclusion:

The Navy and Marine Corps must develop and/or expand affirmative action programs in order to overcome internal and external barriers to minority recruiting and to aid in achieving improved minority representation, particularly in the officer and higher enlisted ranks.

Exhibit 63

Williams, T.C., Effectiveness of Navy Advertising, Masters Thesis, Naval Postgraduate School, Monterey, CA, September 1978.

Service: Navy Time Period: CY76/CY77

Sample: CY76/CY77 Recruits

Methodology: Stepwise Multiple Regression Analysis

Criteria: Quantity/Quality of Recruits

Predictors: Advertising, Recruiter aids, Enlistments, Goals, Number of HSDG, Number of QMA, Number of recruiters, AFQT, and Unemployment.

Summary:

The objective of this analysis was to determine the degree of relationship between naturally occurring advertising and enlistment data (historical data from calendar years 1976 and 1977), controlling for the important managerial, demographic, and socioeconomic variables. Advertising data was lagged to determine if a carryover effect existed between advertising in the past and current enlistments.

Conclusion:

Results demonstrate the importance of the amount, type, and timing of advertising. Apparently excessive amounts of advertising weaken the relationship between advertising and enlistments. The proportion of high school graduates to the QMA in a county was a significant determinant of the enlistment rate, but the proportion of recruiters and the proportion of the monthly recruiters' goal to the QMA, as well as the unemployment rate, were not.

Exhibit 64

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7. Ibid., p. 18.

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